

```

220:      A000                      .FILE8,"FILER.PAL PT1"
6780:    A3EB                      .FILE8,"FILER.PAL PT2"
8010:    A972                      .FILE8,"FILER.PAL PT3"
5730:    AD9E                      .FILE8,"FILER.PAL PT5"
9210:    B3DA                      .FILE8,"FILER.PAL PT8"
6200:    B820                      .FILE8,"FILER.PAL END"
5020:    BFFE                      .END 8,"FILER.PAL START"
2
160:      A000                      .OPT 01
;
180:      A000                      *=      $A000
;
200:      A000                      CART      =      1          ;MAKE 1 FOR CARTRIDGE
;
220:      A000                      .FILE8,"FILER.PAL PT1"
; MICROFILER PT1
;
120:      A000                      PF1       =      133        ;FUNCTION KEY 1
130:      A000                      PF7       =      136        ;FUNCTION KEY 7
;
150:      A000                      D6510     =      $00
160:      A000                      R6510     =      $01
170:      A000                      WARM      =      $07
180:      A000                      NAMLEN    =      $08
190:      A000                      TYPE      =      $0E
200:      A000                      INTGER    =      $14
210:      A000                      SWPFLG    =      $17
220:      A000                      PRTFLG    =      $18
230:      A000                      BUFPTR    =      $20
240:      A000                      POINTA    =      $22
250:      A000                      POINTB    =      $24
260:      A000                      PBGSDT     =      $2B          ;PT BEGINING DATA
270:      A000                      PLSREC     =      $2D          ;PT END OF DATA
280:      A000                      PFRMPT     =      $2F          ;PT FORM PRINT DATA
290:      A000                      PBGREC     =      $31          ;PT FIRST RECORD
300:      A000                      PCRREC     =      $33          ;PT CURRENT RECORD
310:      A000                      POINTC     =      $35
320:      A000                      TOPRAM     =      $37          ;TOP OF RAM
330:      A000                      ACCUM1     =      $61
340:      A000                      ACCUM2     =      $69
350:      A000                      STATUS     =      $90
360:      A000                      STOPKY     =      $91          ;STOP KEY FLAG
370:      A000                      MSGMOD     =      $9D
380:      A000                      TMPEND     =      $73
390:      A000                      TEMP       =      $75
400:      A000                      TEMP2      =      $76
410:      A000                      TEMP3      =      $77
420:      A000                      TEMP4      =      $78
430:      A000                      RANGEF     =      $79
440:      A000                      CURDEV     =      $BA          ;CURRENT DEVICE
450:      A000                      BLIKSW     =      $CC
460:      A000                      NUMCHR     =      $C6
470:      A000                      REVFLG     =      $C7
480:      A000                      BLIKCH     =      $CE
490:      A000                      BLIKON     =      $CF
500:      A000                      SCNLIN     =      $D1
510:      A000                      COLNUM     =      $D3
520:      A000                      QUOTSW     =      $D4
530:      A000                      LINNUM     =      $D6
540:      A000                      INSRIS     =      $D8
550:      A000                      WRAP       =      $D9
560:      A000                      PCCRAM     =      $F3
570:      A000                      ROWCNT     =      $80
580:      A000                      COLCNT     =      $81
590:      A000                      CFIELD     =      $82

```

600:	A000	CFDLEN	=	\$B3	
610:	A000	TEMPFL	=	\$FB	
620:	A000	CHANGE	=	\$FD	
630:	A000	SCMODE	=	\$FE	
640:	A000	MESGFL	=	\$FF	
;					
660:	A000	INPBUF	=	\$0200	
670:	A000	MEMSIZ	=	\$0283	
680:	A000	CCOLOR	=	\$0286	
690:	A000	CHRBKG	=	\$0287	
700:	A000	HIBASE	=	\$0288	
710:	A000	REPEAT	=	\$028A	
720:	A000	NMIVEC	=	\$0318	
;					
740:	A000	BGAREA	=	\$0400	;BEGIN OF RAM
;					
760:	A000	NCHRST	=	\$C000	;NEW CHAR SET
770:	A000	SCREEN	=	\$C800	
780:	A000	SWPARA	=	\$CC00	;SWAP AREA-CHRSET
;					
800:	A000	MAXFLD	=	\$CF00	
810:	A000	RECLEN	=	\$CF01	
820:	A000	FLDTBL	=	\$CF07	
;					
840:	A000	TMPARA	=	\$CF00	;TEMP FILE NAME
850:	A000	FILNAM	=	\$CFE0	;NORM FILE NAME
;					
870:	A000	CHRSET	=	\$D000	;NORMAL CHAR SET
880:	A000	SOUND	=	\$D400	
890:	A000	COLORR	=	\$DB00	
900:	A000	VICSEL	=	\$DD00	
;					
920:	A000	VIDEO	=	\$D000	
930:	A000	VICMOD	=	\$D011	
940:	A000	SPRITE	=	\$D015	
950:	A000	VICMCM	=	\$D016	
960:	A000	VICSCN	=	\$D018	
970:	A000	VICMSK	=	\$D01A	
980:	A000	BDRCLR	=	\$D020	
990:	A000	BKGCLR	=	\$D021	
;					
1010:	A000	BLIPRT	=	\$EA13	;REPLAC CHAR / CRSR
1020:	A000	SYNCOL	=	\$EA24	
1030:	A000	SETSCN	=	\$E56C	;SET SCREEN POINTER
1040:	A000	RESVIC	=	\$E5A0	;RESET VIC CHIP
1050:	A000	SCROUT	=	\$E716	
1060:	A000	DEL1MS	=	\$EEB3	
1070:	A000	GETKEY	=	\$F142	;GET CHAR KEYBOARD
1080:	A000	NMIOLD	=	\$FE47	
1090:	A000	IOINIT	=	\$FFB4	
1100:	A000	RESTOR	=	\$FFB8	
1110:	A000	ACPTR	=	\$FFA5	
1120:	A000	UNLISN	=	\$FFAE	
1130:	A000	LISTEN	=	\$FFB1	
1140:	A000	READST	=	\$FFB7	
1150:	A000	SETLFS	=	\$FFBA	
1160:	A000	SETNAM	=	\$FFBD	
1170:	A000	OPEN	=	\$FFC0	
1180:	A000	CLOSE	=	\$FFC3	
1190:	A000	CHKIN	=	\$FFC6	
1200:	A000	CHKOUT	=	\$FFC9	
1210:	A000	CLRCHN	=	\$FFCC	
1220:	A000	CHRIN	=	\$FFCF	
1230:	A000	OUTPUT	=	\$FFD2	
1240:	A000	LOADRM	=	\$FFD5	
1250:	A000	SAVERM	=	\$FFD8	

1260:	A000	STOP	=	\$FFE1
1270:	A000	GETIN	=	\$FFE4
1280:	A000	CLALL	=	\$FFE7
1290:	A000	PLOT	=	\$FFFO

RECORD FILE FORMAT

PBGSDT = POINTER TO BEGIN OF
SCREEN DATA
- DATA ENDS WITH 00 00

NEXT BYTE = NUMBER OF FIELDS
NEXT BYTES = RECORD LENGTH LB/HB

PFPMPT = POINTER TO BEGIN OF
FORM PRINT DATA
(SEE PT2 FOR DEFINIT)

PBGREC = POINTER TO BEGIN OF
RECORDS
- FIRST BYTE IS A 00

PLSREC = POINTER TO A ZERO ONE
BYTE PAST THE END OF
THE LAST RECORD

FIELD DATA

(DATA SET UP IN SCRNPRT WHEN
MAXFLD BIT 7 IS LOW)

MAXFLD = # OF FIELDS IN RECORD
RECLDN = RECORD LENGTH LB/HB

FLDTBL = LENGTH - # OF FIELDS
= EACH BYTE GIVES LENGTH
AND TYPE OF FIELD
- BITS 0-5 = LENGTH
- BITS 6-7 = SPECIAL
10 = NUMERIC
11 = CHARACTER REQUIRED

1730:	A000	04	A0	POWRUP	.WORDPRESET	
1740:	A002	22	A0	NMITST	.WORDSTART	
1760:	A004	A9	00	PRESET	LDA	#0
1770:	A006	85	07		STA	WARM ;NO FILE IN RAM
1780:	A008	85	08		STA	NAMLEN ;ZERO NAME
1790:	A00A	A9	00		LDA	#<BGAREA
1800:	A00C	A0	04		LDY	#>BGAREA
1810:	A00E	85	2B		STA	PBGSDT
1820:	A010	84	2C		STY	PBGSDT+1
1830:	A012	85	31		STA	PBGREC
1840:	A014	84	32		STY	PBGREC+1
1850:	A016	85	2D		STA	PLSREC
1860:	A018	84	2E		STY	PLSREC+1
1870:	A01A	A9	00		LDA	#0
1880:	A01C	A0	A0		LDY	#\$A0
1890:	A01E	85	37		STA	TOPRAM
1900:	A020	84	38		STY	TOPRAM+1

``` ; START UP MENU ```

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1940:  A022 D8      START      CLD          ; CLEAR DECIMAL MODE
1950:  A023 20 E7 FF      JSR      CLALL
1960:  A026 20 4A B9      JSR      NEWCHR    ; MOVE & MAKE CHRSET
1970:  A029 20 0B B9      JSR      SETVID    ; SETUP VIDEO
1980:  A02C A9 80          LDA      #$80
1990:  A02E 8D 8A 02      STA      REPEAT    ; FULL REPEAT ON
2000:  A031 8D 00 CF      STA      MAXFLD    ; CANCEL FIELD SETUP
2010:  A034 85 24          STA      POINTB    ; PART OF DESTROY
2020:  A036 A2 01          LDX      #1
2030:  A038 A4 38          LDY      TOFRAM+1
2040:  A03A 84 25          STY      POINTB+1

;
2060:  A03C          .IF      CART-1
;
2080:  A03C 20 AB B9      JSR      COPYBK    ; TRY TO DESTROY ROM
;
2100:  A03F A9 D2          LDA      #<SCDATA
2110:  A041 A0 BD          LDY      #>SCDATA
2120:  A043 85 24          STA      POINTB
2130:  A045 84 25          STY      POINTB+1
2140:  A047 A9 00          LDA      #0
2150:  A049 85 FE          STA      SCMODE
2160:  A04B 85 9D          STA      MSGMOD    ; NO MESSAGES
2170:  A04D 20 01 B4      JSR      SCRNP1    ; PRINT SCREEN MAIN
2180:  A050 20 A7 B5      JSR      GETCHR
;
2200:  A053          .IF      CART
2200:  A053          .GOTO2260
2260:  A053 C9 31          MENU0    CMP      #"1"
2270:  A055 D0 13          BNE      MENU1
2280:  A057 20 F4 B5      JSR      SCRCLR
2290:  A05A 20 82 B9      MENU01    JSR      SWAP      ; NORM CHRSET IN
2300:  A05D 20 AB B4      JSR      DESIGN    ; DESIGN SCREEN
2310:  A060 B0 C0          BCS      START    ; <F7>
2320:  A062 20 73 B6      JSR      ANALYZE
2330:  A065 B0 F3          BCS      MENU01
2340:  A067 4C EB A3      JMP      OPTION
2350:  A06A C9 90          MENU1    CMP      #144    ; CTRL '1
2360:  A06C D0 0D          BNE      MENU2
2370:  A06E A5 07          LDA      WARM
2380:  A070 F0 DE          BEQ      LOOP      ; NO DATA YET
2390:  A072 20 F4 B5      JSR      SCRCLR
2400:  A075 20 E7 B3      JSR      SCRNP1
2410:  A078 4C 5A A0      JMP      MENU01    ; GO DESIGN SCREEN
2420:  A07B C9 32          MENU2    CMP      #"2"
2430:  A07D D0 06          BNE      MENU3
2440:  A07F 20 93 A0      JSR      LDDATA    ; LOAD DATA
2450:  A082 4C EB A3      JMP      OPTION
2460:  A085 C9 33          MENU3    CMP      #"3"
2470:  A087 D0 C7          BNE      LOOP
2480:  A089 A5 07          LDA      WARM
2490:  A08B F0 C3          BEQ      LOOP      ; NO DATA YET
2500:  A08D 20 F4 B5      JSR      SCRCLR
2510:  A090 4C EE A3      JMP      OPTINO
;
; ROUTINE TO LOAD RAM
;
2550:  A093 20 F4 B5      LDDATA    JSR      SCRCLR
2560:  A096 20 05 A1      LDDATO    JSR      GETFN    ; GET FILE NAME
2570:  A099 90 03          BCC      LDDAT1    ; 'C SET ON <F7>
2580:  A09B 4C 22 A0      JMP      START
2590:  A09E A9 00          LDDAT1    LDA      #0      ; MAKE INCORRECT
2600:  A0A0 A0 02          LDY      #2      ; DATA GIVE BLANK SCRNP
2610:  A0A2 91 2B          LDDAT2    STA      (FBGSDT).Y

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2620: A0A4 B8      DEY
2630: A0A5 10 FB    BFL LDDAT2
2640: A0A7 A2 21    LDX #33      ;'LOADING...
2650: A0A9 20 BC B9    JSR MESSAG
2660: A0AC 20 07 A3    JSR DSKTST  ;DRIVE HOOKED
2670: A0AF A2 08      LDX #8      ;DEVICE NUMBER
2680: A0B1 90 03      BCC LODIT1  ;'C CLEAR IF YES
2690: A0B3 20 F3 A0    JSR SETTAP  ;SETUP FOR TAPE
2700: A0B6 A9 01      LDA #1      LODIT1
2710: A0B8 A0 01      LDY #1
2720: A0BA 20 BA FF    JSR SETLFS
2730: A0BD A5 08      LDA NAMLEN
2740: A0BF A2 E0      LDX #<FILNAM
2750: A0C1 A0 CF      LDY #>FILNAM
2760: A0C3 20 BD FF    JSR SETNAM
2770: A0C6 A9 00      LDA #0      ;LOAD
2780: A0C8 20 D5 FF    JSR LOADRM  ;GO LOAD RAM
2790: A0CB A9 00      LDA #0
2800: A0CD 85 9D      STA MSGMOD  ;MESSAGES OFF
2810: A0CF B0 0C      BCS LODERR  ;'C SET ON ERROR
2820: A0D1 86 2D      STX PLSREC  ;SAVE NEW END
2830: A0D3 84 2E      STY PLSREC+1
2840: A0D5 A8          TAY
2850: A0D6 91 2D      STA (PLSREC),Y ;PUT 'O AT END
2860: A0D8 E6 07      INC WARM    ;SOMETHING IN
2870: A0DA 4C EB A3    JMP OPTION

;
2890: A0DD 20 07 A3    JSR DSKTST  ;TEST FOR DRIVE
2900: A0E0 B0 09      BCS LODIT2  ;NOT DISK
2910: A0E2 20 8F A2    JSR DSKERR  ;TEST ERROR
2920: A0E5 20 E6 A2    JSR PRterr  ;PRINT ERROR
2930: A0E8 4C 96 A0    JMP LDDATO
2940: A0EB A2 1B      LDX #27      LODIT2
2950: A0ED 20 BC B9    JSR MESSAG  ;'LOAD ERROR....
2960: A0F0 4C 96 A0    JMP LDDATO

;
; ROUTINE TO SETUP FOR TAPE
; LOAD, SAVE, ETC.
;
3010: A0F3 A9 C0      SETTAP LDA #C0    ;ENABLE ALL MESGS
3020: A0F5 85 9D      STA MSGMOD
3030: A0F7 20 3B B6    JSR ARACLr  ;CLEAR SCREEN AREA
3040: A0FA A2 03      LDX #3      ;POSITION CRSR
3050: A0FC A0 00      LDY #0
3060: A0FE 18          CLC
3070: A0FF 20 F0 FF    JSR PLOT
3080: A102 A2 01      LDX #1      ;DEVICE NUMBER
3090: A104 60          RTS

;
; ROUTINE TO GET FILE OR DISK NAME
;
3130: A105 A2 15      GETFN  LDX #21    ;'FILE NAME...
3140: A107 20 BC B9    JSR MESSAG
3150: A10A A9 10      GETWFF LDA #16    ;WF FILE ENTRY
3160: A10C 85 FB      GETFNO STA TEMPFL  ;SAVE LENGTH
3170: A10E A9 9F      GETFO  LDA #159   ;SET CRSR COLOR
3180: A110 20 76 B5    JSR EDOUT
3190: A113 A0 0B      LDY #11
3200: A115 A6 08      LDX NAMLEN  ;GET PREV NAME LENGTH
3210: A117 F0 20      BEQ GETFN1  ;NO-PREV NAME
3220: A119 A5 FB      LDA TEMPFL  ;GET MAX LENGTH
3230: A11B C9 13      CMP #19    ;IS IT 'DISK NAME'
3240: A11D F0 1A      BEQ GETFN1  ;YES-NO PREV NAME
3250: A11F A2 00      LDX #0
3260: A121 A0 0B      LDY #11
3270: A123 18          CLC

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3280: A124 20 F0 FF      JSR  PLOT
3290: A127 A2 00      LDX  #0
3300: A129 BD E0 CF GETF  LDA  FILNAM,X
3310: A12C 20 16 E7      JSR  SCROUT
3320: A12F E8          INX
3330: A130 E4 08      CFX  NAMLEN
3340: A132 D0 F5      BNE  GETF
3350: A134 8A          TXA
3360: A135 18          CLC
3370: A136 69 0B      ADC  #11
3380: A138 AB          TAY
3390: A139 A2 00      GETFN1 LDX  #0
3400: A13B 18          CLC
3410: A13C 20 F0 FF      JSR  PLOT
3420: A13F A9 00      FILGTO LDA  #0
3430: A141 85 CC          STA  BLIKSW      ;CRSR BLINK ON
3440: A143 20 A7 B5 FILGET JSR  GETCHR
3450: A146 A6 FF          LDX  MSGFL      ;CHECK ERROR CLEAR
3460: A148 F0 09      BEQ  FILGT1      ;NO-CONTINUE
3470: A14A 48          PHA      ;SAVE KEY PRESS
3480: A14B 20 0B B6      JSR  CLEARB
3490: A14E 68          PLA      ;GET KEY PRESS
3500: A14F A2 00      LDX  #0      ;CANCEL ERROR CLEAR
3510: A151 86 FF          STX  MSGFL
3520: A153 C9 88      FILGT1 CMP  #FF7      ;<F7>
3530: A155 D0 02      BNE  FILO
3540: A157 38          SEC      ;SET FLAG & RETURN
3550: A158 60          RTS
3560: A159 C9 0D      FILO  CMP  #13      ;RETURN
3570: A15B F0 73      BEQ  FILDON
3580: A15D C9 14      CMP  #20      ;DELETE
3590: A15F F0 58      BEQ  FILDEL
3600: A161 A6 FB      LDX  TEMPFL      ;DIRORY IN FILE MODE
3610: A163 E0 10      CFX  #16
3620: A165 D0 26      BNE  FIL1
3630: A167 C9 3F      CMP  #"?"      ;DO DIRECTORY
3640: A169 D0 0B      BNE  FILO1
3650: A16B 20 07 A3      JSR  DSKTST
3660: A16E B0 15      BCS  FILO2      ;NO DISK DRIVE
3670: A170 20 DB A1      JSR  DIRORY      ;DO DIRECTORY
3680: A173 4C 0E A1      JMP  GETFO
3690: A176 C9 06      FILO1 CMP  #6      ;<CTRL>F
3700: A178 D0 13      BNE  FIL1
3710: A17A 20 07 A3      JSR  DSKTST
3720: A17D B0 06      BCS  FILO2      ;NO DISK
3730: A17F 20 5A A3      JSR  FOMQES      ;GO FORMAT DISK
3740: A182 4C 05 A1      JMP  GETFN
3750: A185 A2 1C      FILO2 LDX  #28      ;'DISK DRIVE NOT...
3760: A187 20 BC B9      JSR  MESSAG
3770: A18A 4C 0E A1      JMP  GETFO
3780: A18D C9 9D      FIL1  CMP  #157      ;CRSR LEFT
3790: A18F F0 28      BEQ  FILDEL
3800: A191 A6 08      LDX  NAMLEN
3810: A193 F0 04      BEQ  FIL2
3820: A195 C9 20      CMP  #" "      ;SPACE OK AFT POS 1
3830: A197 F0 10      BEQ  FILPRT
3840: A199 C9 2D      FIL2  CMP  #"-"
3850: A19B 90 A6      BCC  FILGET
3860: A19D C9 3A      CMP  #": "      ;'9+1
3870: A19F 90 08      BCC  FILPRT
3880: A1A1 C9 41      CMP  #"A"
3890: A1A3 90 9E      BCC  FILGET
3900: A1A5 C9 5B      CMP  #"L "      ;'Z+1
3910: A1A7 B0 9A      BCS  FILGET
3920: A1A9 A6 08      FILPRT LDX  NAMLEN      ;NUM CHAR
3930: A1AB F4 FB      CFX  TEMPFL      ;TEST MAX CHARS

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3940: A1AD F0 94      BEQ  FILGET
3950: A1AF 9D E0 CF      STA  FILNAM,X
3960: A1B2 20 76 B5      JSR  EDOUT
3970: A1B5 E6 08      INC  NAMLEN
3980: A1B7 D0 14      BNE  FILLDN      ;GO GET NEXT ALWAYS

      ;
4000: A1B9 A6 D3      FILDEL  LDX  COLNUM
4010: A1BB E0 0B      CPX  #11
4020: A1BD F0 84      BEQ  FILGET
4030: A1BF 20 7C B5      JSR  BLKOFF      ;BLINK CRSR OFF
4040: A1C2 C6 08      DEC  NAMLEN
4050: A1C4 C6 D3      DEC  COLNUM
4060: A1C6 A9 20      LDA  #" "      ;FILL CHAR
4070: A1C8 20 76 B5      JSR  EDOUT
4080: A1CB C6 D3      DEC  COLNUM
4090: A1CD 4C 3F A1 FILLDN  JMP  FILGTO

      ;
4110: A1D0 A4 D3      FILDON  LDY  COLNUM      ;ENTRY YET
4120: A1D2 C0 0B      CPY  #11
4130: A1D4 F0 F7      BEQ  FILLDN      ;MUST HAVE ENTRY
4140: A1D6 20 7C B5 FILDN1  JSR  BLKOFF
4150: A1D9 18      CLC
4160: A1DA 60      RTS

      ;
      ; ROUTINE TO PRINT DIRECTORY
      ;
4200: A1DB 20 7C B5 DIRORY  JSR  BLKOFF
4210: A1DE 20 3B B6      JSR  ARACLR      ;CLEAR AREA
4220: A1E1 A2 02      LDX  #2
4230: A1E3 A0 08      LDY  #8
4240: A1E5 18      CLC
4250: A1E6 20 F0 FF      JSR  PLOT      ;POSITION CRSR
4260: A1E9 A9 00      LDA  #0
4270: A1EB 85 77      STA  TEMP3
4280: A1ED 20 88 A2      JSR  DSKINT
4290: A1F0 90 06      BCC  DIR01      ;TEST FOR ERROR
4300: A1F2 20 E6 A2      JSR  PRterr      ;PRINT ERROR
4310: A1F5 4C 7A A2      JMP  DIRDON
4320: A1F8 A9 02      DIR01  LDA  #2
4330: A1FA A2 DC      LDX  #<DIRDTA
4340: A1FC A0 A3      LDY  #>DIRDTA
4350: A1FE 20 BD FF      JSR  SETNAM
4360: A201 A9 01      LDA  #1
4370: A203 A2 08      LDX  #8
4380: A205 A0 00      LDY  #0
4390: A207 20 BA FF      JSR  SETLFS
4400: A20A 20 C0 FF      JSR  OPEN
4410: A20D A2 01      LDX  #1
4420: A20F 20 C6 FF      JSR  CHKIN
4430: A212 A6 90      LDX  STATUS      ;TEST ERROR
4440: A214 D0 64      BNE  DIRDON
4450: A216 A0 06      LDY  #6      ;DUMP START & LINK
4460: A218 20 A5 FF DIR1  JSR  ACPTR
4470: A21B 88      DEY
4480: A21C D0 FA      BNE  DIR1
4490: A21E 20 A5 FF DIR2  JSR  ACPTR      ;READ DISKNAME
4500: A221 F0 05      BEQ  DIR3
4510: A223 20 16 E7      JSR  SCROUT
4520: A226 D0 F6      BNE  DIR2      ;ALWAYS
4530: A228 A9 00      DIR3  LDA  #0
4540: A22A 85 C7      STA  REVFLG
4550: A22C A4 D3      DIR31  LDY  COLNUM
4560: A22E C0 16      CPY  #22
4570: A230 B0 06      BCS  DIR4
4580: A232 A0 16      LDY  #22
4590: A234 B4 D3      STY  COLNUM

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4600: A236 D0 0C BNE DIR41 ; ALWAYS
4610: A238 A0 01 DIR4 LDY #1
4620: A23A A6 D6 LDX LINNUM
4630: A23C E8 INX
4640: A23D E0 17 CPX #23
4650: A23F B0 39 BCS DIRDON
4660: A241 20 F0 FF JSR PLOT ; 'C CLR - GO PLOT
4670: A244 A6 90 DIR41 LDX STATUS ; GET ERROR
4680: A246 D0 32 BNE DIRDON
4690: A248 A0 05 LDY #5
4700: A24A 20 A5 FF DIR42 JSR ACPTR
4710: A24D A6 90 LDX STATUS
4720: A24F D0 29 BNE DIRDON
4730: A251 88 DEY
4740: A252 D0 F6 BNE DIR42
4750: A254 C9 20 CMP #" "
4760: A256 D0 22 BNE DIRDON
4770: A258 20 A5 FF DIR5 JSR ACPTR
4780: A25B F0 CF BEQ DIR31
4790: A25D A6 90 LDX STATUS
4800: A25F D0 19 BNE DIRDON
4810: A261 C9 22 CMP #34 ; QUOTE
4820: A263 D0 04 BNE DIR6
4830: A265 E6 77 INC TEMP3
4840: A267 D0 07 BNE DIR7 ; ALWAYS
4850: A269 A6 77 DIR6 LDX TEMP3
4860: A26B F0 03 BEQ DIR7
4870: A26D 20 16 E7 JSR SCROUT
4880: A270 E0 02 DIR7 CPX #2
4890: A272 90 E4 BCC DIR5
4900: A274 A2 00 LDX #0
4910: A276 86 77 STX TEMP3
4920: A278 F0 DE BEQ DIR5 ; ALWAYS
4930: A27A A9 01 DIRDON LDA #1
4940: A27C 20 C3 FF JSR CLOSE
4950: A27F 20 8F A2 JSR DSKERR
4960: A282 90 03 BCC DIRDN1
4970: A284 20 E6 A2 JSR PRterr ; PRINT ERROR
4980: A287 60 DIRDN1 RTS
;
; INITIALIZE OR OTHER ERROR CHANNEL
; CALLS TO DISK DRIVE
;
5030: A288 A9 02 DSKINT LDA #2
5040: A28A A2 DA LDX #<INITDT
5050: A28C A0 A3 LDY #>INITDT
5060: A28E 2C .BYT $2C ; BIT OFCODE
5070: A28F A9 00 DSKERR LDA #0
5080: A291 20 BD FF DSKERO JSR SETNAM
5090: A294 20 E7 FF JSR CLALL
5100: A297 A9 00 LDA #0
5110: A299 8D 00 02 STA INPBUF ; NO ERROR YET
5120: A29C A9 0F LDA #15
5130: A29E A2 08 LDX #8
5140: A2A0 A0 0F LDY #15
5150: A2A2 20 BA FF JSR SETLFS
5160: A2A5 20 C0 FF JSR OPEN
5170: A2A8 A6 90 LDX STATUS
5180: A2AA D0 03 BNE DSKER2
5190: A2AC 20 C0 A2 JSR GETERR ; GO GET DISK ERROR
5200: A2AF A9 0F DSKER2 LDA #15
5210: A2B1 20 C3 FF JSR CLOSE
5220: A2B4 20 CC FF JSR CLRCHN
5230: A2B7 AD 00 02 LDA INPBUF ; GET ERROR
5240: A2BA C9 31 CMP #"1" ; > '0 IS ERROR
5250: A2BC B0 01 BCS DSKED1

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5260: A2BE 18 DSKERD CLC
5270: A2BF 60 DSKED1 RTS
;
5290: A2C0 38 GETERR SEC ; GET ERRORS
5300: A2C1 A6 90 LDX STATUS
5310: A2C3 D0 20 BNE GETER3
5320: A2C5 A2 0F LDX #15
5330: A2C7 20 C6 FF JSR CHKIN
5340: A2CA A0 00 LDY #0
5350: A2CC 20 A5 FF GETER1 JSR ACPTR
5360: A2CF 99 00 02 STA INPBUF,Y
5370: A2D2 C9 0D CMP #13 ; <CR>
5380: A2D4 F0 05 BEQ GETER2
5390: A2D6 C8 INY
5400: A2D7 C0 1E CPY #30 ; MAXIMUM OF 30 CHARS
5410: A2D9 D0 F1 BNE GETER1
5420: A2DB A2 04 GETER2 LDX #4 ; SET OUT DEVICE
5430: A2DD 20 C9 FF JSR CHKOUT
5440: A2E0 AD 00 02 LDA INPBUF ; GET ERROR
5450: A2E3 C9 31 CMP #"1" ; 'C SET ON ERROR
5460: A2E5 60 GETER3 RTS
;
5480: A2E6 A2 1D PRTERR LDX #29 ; 'DISK ERROR...
5490: A2E8 20 BC B9 JSR MESSAG
5500: A2EB A9 05 LDA #5 ; WHITE
5510: A2ED 20 16 E7 JSR SCROUT
5520: A2F0 A0 00 LDY #0
5530: A2F2 B9 00 02 ERRPT1 LDA INPBUF,Y
5540: A2F5 C9 0D CMP #13
5550: A2F7 F0 08 BEQ ERRPT3
5560: A2F9 20 16 E7 JSR SCROUT
5570: A2FC C8 INY
5580: A2FD C0 18 CPY #24
5590: A2FF 90 F1 BCC ERRPT1 ; ONLY ALLOW ONE LINE
5600: A301 A9 9F ERRPT3 LDA #159 ; CYAN
5610: A303 20 16 E7 JSR SCROUT
5620: A306 60 RTS
;
; TEST TO SEE IF DISK DRIVE IS
; CONNECTED TO SYSTEM
;
5670: A307 A9 00 DSKTST LDA #0 ; CLEAR ERROR
5680: A309 B5 90 STA STATUS
5690: A30B A9 08 LDA #8
5700: A30D 20 B1 FF JSR LISTEN
5710: A310 20 AE FF JSR UNLISN
5720: A313 20 CC FF JSR CLRCHN
5730: A316 18 CLC
5740: A317 A6 90 LDX STATUS ; CHECK ERROR
5750: A319 F0 01 BEQ TST0
5760: A31B 38 SEC
5770: A31C 60 TST0 RTS
;
; TEST TO SEE IF DISK IS FORMATTED
; BEFORE A SAVE IS TRYED
;
5820: A31D A9 08 DSKBAM LDA #8
5830: A31F A0 08 LDY #8
5840: A321 A2 08 LDX #8
5850: A323 20 BA FF JSR SETLFS
5860: A326 A9 01 LDA #1 ; OPEN CHANNEL
5870: A328 A2 DE LDX #<CHANEL
5880: A32A A0 A3 LDY #>CHANEL
5890: A32C 20 BD FF JSR SETNAM
5900: A32F 20 C0 FF JSR OPEN
5910: A332 A9 0C LDA #12 ; OPEN B-P TO BAM

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5920: A334 A2 DF LDX #<BAMDTA
5930: A336 A0 A3 LDY #>BAMDTA
5940: A338 20 91 A2 JSR DSKERO ;GO OPEN & TEST
5950: A33B 90 0E BCC BAMDON
5960: A33D AD 00 02 LDA INFBUF
5970: A340 C9 32 CMP #2" ;ERROR '20'-UNFORMATD
5980: A342 D0 07 BNE BAMDON
5990: A344 AD 01 02 LDA INFBUF+1
6000: A347 C9 30 CMP #0"
6010: A349 F0 07 BEQ FORMAT
6020: A34B A9 08 BAMDON LDA #8
6030: A34D 20 C3 FF JSR CLOSE
6040: A350 18 CLC
6050: A351 60 RTS

```

```

;
; ROUTINE TO FORMAT DISK
;

```

```

6090: A352 A9 08 FORMAT LDA #8 ;FORMAT DISK
6100: A354 20 C3 FF JSR CLOSE
6110: A357 20 88 A2 JSR DSKINT ;CLEAR ERROR
6120: A35A A2 18 FOMQES LDX #24 ;'FORMAT DISK..'
6130: A35C 20 BC B9 JSR MESSAG
6140: A35F 20 A7 B5 FORGET JSR GETCHR
6150: A362 48 PHA
6160: A363 20 0B B6 JSR CLEARB ;CLEAR MESSAGE
6170: A366 68 PLA
6180: A367 C9 59 CMP #Y"
6190: A369 D0 3E BNE FORRTS
6200: A36B 20 AB A3 JSR SAVFLN ;SAVE FILENAME
6210: A36E A2 00 LDX #0 ;PUT IN "NO:"
6220: A370 BD CD A3 FOR1 LDA DSKNW1,X
6230: A373 9D E0 CF STA FILNAM,X
6240: A376 EB INX
6250: A377 E0 03 CPX #3
6260: A379 D0 F5 BNE FOR1
6270: A37B 86 08 STX NAMLEN
6280: A37D A2 20 LDX #32 ;'DISK NAME..'
6290: A37F 20 BC B9 JSR MESSAG
6300: A382 A9 13 LDA #19
6310: A384 20 0C A1 JSR GETFNO ;GET DISK NAME
6320: A387 B0 1D BCS FORDON
6330: A389 A6 08 LDX NAMLEN ;ADD ON ',MF
6340: A38B A0 00 LDY #0
6350: A38D B9 D0 A3 FOR2 LDA DSKNW2,Y
6360: A390 9D E0 CF STA FILNAM,X
6370: A393 EB INX
6380: A394 C8 INY
6390: A395 C0 03 CPY #3
6400: A397 D0 F4 BNE FOR2
6410: A399 BA TXA
6420: A39A A2 E0 LDX #<FILNAM
6430: A39C A0 CF LDY #>FILNAM
6440: A39E 20 91 A2 JSR DSKERO ;GO OPEN AND TEST
6450: A3A1 90 03 BCC FORDON
6460: A3A3 20 E6 A2 JSR PRterr ;PRINT ERROR
6470: A3A6 20 BE A3 FORDON JSR RESFLN ;RESTORE FILENAM
6480: A3A9 38 FORRTS SEC ;FORMAT FLAG
6490: A3AA 60 RTS

```

```
;
```

```

6510: A3AB A6 08 SAVFLN LDX NAMLEN ;SAVE FILENAME
6520: A3AD 8E C0 CF STX TMPARA
6530: A3B0 BD E0 CF SAVFLL LDA FILNAM,X
6540: A3B3 9D C1 CF STA TMPARA+1,X
6550: A3B6 CA DEX
6560: A3B7 10 F7 BPL SAVFLL
6570: A3B9 A2 00 LDX #0 ;SET TO NO.1 LENGTH

```

```

6580:  A3BB 86 08      STX  NAMLEN
6590:  A3BD 60          RTS

;
6610:  A3BE AE C0 CF RESFLN  LDX  TMPARA  ;RESTORE FILENAM
6620:  A3C1 86 08      STX  NAMLEN
6630:  A3C3 BD C1 CF RESFLL  LDA  TMPARA+1,X
6640:  A3C6 9D E0 CF      STA  FILNAM,X
6650:  A3C9 CA          DEX
6660:  A3CA 10 F7      BPL  RESFLL
6670:  A3CC 60          RTS

```

```

;
6690:  A3CD 4E 30 3A DSKNW1  .ASC  "NO:"
6700:  A3D0 2C 4D 46 DSKNW2  .ASC  ",MF"
6710:  A3D3 2C 53 2C DSKSEQ  .ASC  ",S,W"
6720:  A3D7 53 30 3A ERASDT  .ASC  "SO:"
6730:  A3DA 49 30      INITDT  .ASC  "IO"
6740:  A3DC 24 30      DIRDTA  .ASC  "$0"
6750:  A3DE 23          CHANEL  .ASC  "#"
6760:  A3DF 42 2D 52 BAMDTA  .ASC  "B-R:8 0 18 0"

```

```

;
6780:  A3EB          .FILEB,"FILER.PAL PT2"
;  MICROFILER PT2
;
;
;  OPTION MENU
;
;

```

```

160:  A3EB 20 F4 B5 OPTION  JSR  SCRCLR      ;CLEAR BOTH
170:  A3EE 20 EA B3 OPTINO  JSR  SCRNPRT
180:  A3F1 A2 12      OPTIN1  LDX  #18      ;OPTION MENU
190:  A3F3 20 BC B9      JSR  MESSAG
200:  A3F6 20 A7 B5 OPTGET  JSR  GETCHR
210:  A3F9 A6 FF      LDX  MESGFL
220:  A3FB F0 09      BEQ  ENTO
230:  A3FD 48          PHA
240:  A3FE 20 0B B6      JSR  CLEARB
250:  A401 68          PLA
260:  A402 A2 00      LDX  #0
270:  A404 86 FF      STX  MESGFL
280:  A406 C9 45      ENTO    CMP  #"E"      ;'ENTER
290:  A408 D0 16      BNE  OPT2
300:  A40A 20 FA B5      JSR  CLEARB
310:  A40D 20 1C B6 ENT1    JSR  CLRFLD
320:  A410 20 59 B2      JSR  ENTDAT
330:  A413 B0 D6      ENT11  BCS  OPTION      ;DONE ENTER
340:  A415 20 3E B1      JSR  STODAT
350:  A418 90 F3      BCC  ENT1
360:  A41A 20 79 B2      JSR  ENT03
370:  A41D 4C 13 A4      JMP  ENT11
380:  A420 C9 52      OPT2    CMP  #"R"      ;'RETRIEVE
390:  A422 D0 03      BNE  OPT3
400:  A424 4C 72 A9      JMP  RETREV
410:  A427 C9 53      OPT3    CMP  #"S"      ;'SAVE
420:  A429 D0 03      BNE  OPT4
430:  A42B 4C D6 A8      JMP  SAVE
440:  A42E C9 46      OPT4    CMP  #"F"      ;'FORM PRINT
450:  A430 D0 03      BNE  OPT5
460:  A432 4C 3F A4      JMP  FPRNT
470:  A435 C9 4D      OPT5    CMP  #"M"      ;'MEMORY
480:  A437 D0 BD      BNE  OPTGET
490:  A439 20 8A B7      JSR  MEMORY
500:  A43C 4C F1 A3      JMP  OPTIN1

```

```

;
; -----
; ROUTINE TO GET AND PRINT DATA
; BY DEFINED FORMAT

```

** PRINT DATA FORMAT **

```

LENGTH = MAXFLD * 2
FIRST BYTE = FIELD NUMBER TO PRNT
SECOND BYTE = WHAT TO DO AFTER FLD
    $B0-$B9=NUMBER OF SPACES
    $93 (S)=SINGLE LINE FEED
    $84 (D)=DOUBLE LINE FEED
    $94 (T)=TRIPLE LINE FEED
    $90 (P)=PACK DATA
        IE. THROW AWAY LEFT
        SPACES IN FIELD DATA

PFRMPT = POINTER TO BEGINNING
        OF PRINT DATA

NEXT BYTE = LEFT MARGIN
NEXT BYTE = LINES BETWEEN RECORDS

```

```

760:  A43F 20 F7 B5 FPRNT    JSR  CLERTB
770:  A442 20 1C B6        JSR  CLRFLD
780:  A445 A2 16          LDX  #22          ;'CHANGE OR PRINT...
790:  A447 20 BC B9        JSR  MESSAG
800:  A44A A2 25          LDX  #37          ;'LEFT MG LINE BETW...
810:  A44C 20 BC B9        JSR  MESSAG
820:  A44F A9 01          LDA  #1
830:  A451 B5 76          STA  TEMP2          ;SET COUNTER TO '1
840:  A453 A0 00          LDY  #0
850:  A455 B4 0E          STY  TYPE          ;CLEAR 'Y & ORDER FLAG
860:  A457 AE 00 CF        LDX  MAXFLD          ;GET END OF DATA
870:  A45A B1 2F          FRMPA1 LDA  (PFRMPT),Y
880:  A45C F0 0B          BEQ  FRMPA2          ;END OF PRINT DATA
890:  A45E C5 76          CMP  TEMP2
900:  A460 D0 09          BNE  FRMPA3          ;NOT RIGHT ORDER
910:  A462 C8            INY          ;NEXT DATA
920:  A463 C8            INY
930:  A464 E6 76          INC  TEMP2          ;UP NUMBER
940:  A466 CA            DEX
950:  A467 D0 F1          BNE  FRMPA1          ;NOT END YET
960:  A469 E6 0E          FRMPA2 INC  TYPE          ;SET FLAG-NO ORDER
970:  A46B A9 00          FRMPA3 LDA  #0
980:  A46D B5 76          STA  TEMP2          ;ZERO ORDER NUMBER
990:  A46F A2 01          FRMPT1 LDX  #1
1000: A471 A0 27          LDY  #39
1010: A473 18            CLC
1020: A474 20 F0 FF        JSR  PLOT
1030: A477 A5 76          LDA  TEMP2
1040: A479 0A            ASL          ;TIMES TWO
1050: A47A AB            TAY
1060: A47B B1 2F          LDA  (PFRMPT),Y
1070: A47D 09 80          ORA  #$80          ;MAKE INTO FIELD
1080: A47F AA            TAX
1090: A480 B4 77          STY  TEMP3          ;SAVE 'Y
1100: A482 20 1A B3        JSR  FLDFWD          ;GO FIND FIELD
1110: A485 A4 77          LDY  TEMP3          ;GET 'Y
1120: A487 C8            INY
1130: A488 B1 2F          LDA  (PFRMPT),Y ;GET WHAT TO DO
1140: A48A F0 1C          BEQ  FRMP20          ;TYPE '0 IS END
1150: A48C A4 D3          LDY  COLNUM          ;PRINT IT IN FIELD
1160: A48E E6 D3          INC  COLNUM
1170: A490 91 D1          STA  (SCNLIN),Y
1180: A492 A5 0E          LDA  TYPE          ;GET FLAG
1190: A494 D0 09          BNE  FRMP19          ;DONT PRINT ORDER
1200: A496 A6 76          LDX  TEMP2          ;GET PRINT NUMBER

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1210: A498 E8      ; PLUS 1 FOR ORDER
1220: A499 8A      TXA
1230: A49A A4 D3    LDY COLNUM
1240: A49C 20 9D A8 JSR DIVTEN      ;DIVIDE BY 10
1250: A49F E6 76    FRMP19 INC TEMP2      ;UP FOR NEXT TIME
1260: A4A1 A5 76    LDA TEMP2
1270: A4A3 CD 00 CF  CMP MAXFLD      ;TO END YET
1280: A4A6 90 C7    BCC FRMPT1      ;NO GO AGAIN

;
1300: A4A8 A2 18    FRMP20 LDX #24      ;PRINT LEFT MARGIN
1310: A4AA A0 00    LDY #0
1320: A4AC 18      CLC
1330: A4AD 20 F0 FF JSR PLOT
1340: A4B0 AD 00 CF  LDA MAXFLD
1350: A4B3 0A      ASL      ;TIMES 2
1360: A4B4 A8      TAY
1370: A4B5 B1 2F    LDA (PFRMPT),Y
1380: A4B7 85 35    STA POINTC      ;SAVE LEFT MARGIN
1390: A4B9 C8      INY
1400: A4BA 84 76    STY TEMP2      ;SAVE POINTER
1410: A4BC A0 0D    LDY #13
1420: A4BE 20 9D A8 JSR DIVTEN

;
1440: A4C1 A4 76    LDY TEMP2      ;GET POINTER
1450: A4C3 B1 2F    LDA (PFRMPT),Y
1460: A4C5 85 36    STA POINTC+1    ;SAVE LINES BETWEEN
1470: A4C7 A0 25    LDY #37
1480: A4C9 20 9D A8 JSR DIVTEN

;
1500: A4CC 20 A7 B5 FRMPT3 JSR GETCHR      ;GET KEYPRESS
1510: A4CF C9 88    CMP #PF7      ;<F7>
1520: A4D1 D0 03    BNE FRMPT4
1530: A4D3 4C EB A3 FRMP31 JMP OPTION
1540: A4D6 C9 50    FRMPT4 CMP #"P"      ;"PRINT
1550: A4D8 D0 03    BNE FRMP44
1560: A4DA 4C 0E A6 JMP FRMTTT      ;NO CHANGES
1570: A4DD C9 57    FRMP44 CMP #"W"      ;WP FILE
1580: A4DF D0 03    BNE FRMP45
1590: A4E1 4C 52 A6 JMP FRMWWW      ;GO CREATE WP FILE
1600: A4E4 C9 43    FRMP45 CMP #"C"      ;"CHANGE
1610: A4E6 D0 E4    BNE FRMPT3
1620: A4E8 20 F7 B5 JSR CLRTB      ;CLEAR BOTH
1630: A4EB A2 0E    LDX #14      ;"ENTER PRINT...
1640: A4ED 20 BC B9 JSR MESSAG
1650: A4F0 A9 00    LDA #0
1660: A4F2 85 FF    STA MSGFL      ;RESET MESSAGE CLEAR
1670: A4F4 20 5E B2 FRMP46 JSR ENTA1      ;GO CHNG FORMAT

;
; READ IN NEW PRINT DATA
;
1710: A4F7 B0 DA    FRMP41 BCS FRMP31      ;TEST FOR <F7>
1720: A4F9 AD 00 CF  LDA MAXFLD      ;GET NUMBER OF FIELDS
1730: A4FC 0A      ASL      ;TIMES 2
1740: A4FD A8      TAY
1750: A4FE 88      DEY      ;MAKE START AT ZERO
1760: A4FF 84 76    STY TEMP2      ;SAVE IT
1770: A501 A9 00    LDA #0
1780: A503 85 0E    STA TYPE      ;CLEAR TYPE-FLAG
1790: A505 91 2F    FRMP40 STA (PFRMPT),Y ;CLEAR ARRAY
1800: A507 88      DEY
1810: A508 D0 FB    BNE FRMP40

;
1830: A50A A2 01    LDX #1      ;CRSR AT TOP
1840: A50C A0 27    LDY #39
1850: A50E 18      CLC
1860: A50F 20 F0 FF JSR PLOT

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1870: A512 A9 FF LDA #FF
1880: A514 B5 B2 STA CFIELD ;CURRENT FIELD TO -1
1890: A516 E6 B2 FRMP42 INC CFIELD
1900: A518 A5 B2 LDA CFIELD
1910: A51A CD 00 CF CMP MAXFLD
1920: A51D D0 03 BNE FRMP55
1930: A51F 4C CB A5 JMP FRMPS ;SET UP DONE

;
1950: A522 A2 B1 FRMP55 LDX #B1
1960: A524 20 1A B3 JSR FLDFWD ;GO TO NEXT FIELD
1970: A527 A4 D3 LDY COLNUM
1980: A529 B1 D1 LDA (SCNLIN),Y ;GET CODE
1990: A52B C9 A0 CMP #160 ;REV SPACE
2000: A52D F0 E7 BEQ FRMP42 ;NO ENTRY
2010: A52F C9 90 CMP #144 ;REV 'P
2020: A531 F0 2D BEQ FRMPT6
2030: A533 C9 93 CMP #147 ;REV 'S
2040: A535 F0 29 BEQ FRMPT6
2050: A537 C9 84 CMP #132 ;REV 'D
2060: A539 F0 25 BEQ FRMPT6
2070: A53B C9 94 CMP #148 ;REV 'T
2080: A53D F0 21 BEQ FRMPT6
2090: A53F C9 B0 CMP #176 ;REV 'O
2100: A541 90 04 BCC FRMPT5
2110: A543 C9 BA CMP #186 ;REV '9 + 1
2120: A545 90 19 BCC FRMPT6
2130: A547 A5 D3 FRMPT5 LDA COLNUM ;SAVE POSITION
2140: A549 48 PHA
2150: A54A A5 D6 LDA LINNUM
2160: A54C 48 PHA
2170: A54D A2 24 LDX #36 ;'INVALID CHAR...'
2180: A54F 20 BC B9 JSR MESSAG
2190: A552 68 PLA ;RESTORE POSITION
2200: A553 AA TAX
2210: A554 68 PLA
2220: A555 A8 TAY
2230: A556 18 CLC
2240: A557 20 F0 FF JSR PLOT
2250: A55A 20 79 B2 JSR ENTD3 ;GO TRY AGAIN
2260: A55D 4C F7 A4 JMP FRMP41

;
2280: A560 B5 0E FRMPT6 STA TYPE ;SAVE TYPE
2290: A562 A9 00 LDA #0
2300: A564 B5 75 STA TEMP ;CLEAR PRINT NUMBER
2310: A566 C8 INY
2320: A567 C0 28 CPY #40 ;TEST FOR EOL
2330: A569 B0 35 BCS FRM10
2340: A56B B1 D1 LDA (SCNLIN),Y ;GET NUMBER
2350: A56D 10 31 BPL FRM10 ;NOT INVERSE
2360: A56F C9 A0 CMP #160 ;REV SPACE
2370: A571 F0 2D BEQ FRM10
2380: A573 C9 B1 CMP #177 ;REV '1
2390: A575 90 D0 BCC FRMPT5
2400: A577 C9 BA CMP #186 ;REV '9 + 1
2410: A579 B0 CC BCS FRMPT5
2420: A57B 29 0F AND #0F
2430: A57D B5 75 STA TEMP ;OK-SAVE IT
2440: A57F C8 INY
2450: A580 C0 28 CPY #40 ;TEST FOR EOL
2460: A582 B0 1C BCS FRM10
2470: A584 B1 D1 LDA (SCNLIN),Y ;TEST FOR 2 DIGITS
2480: A586 10 18 BPL FRM10 ;NOT INVERSE
2490: A588 C9 A0 CMP #160 ;REV SPACE
2500: A58A F0 14 BEQ FRM10 ;NO-DONE
2510: A58C C9 B0 CMP #176 ;REV 'O
2520: A58E 90 B7 BCC FRMPT5

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2530: A590 C9 BA      CMP #186      ;REV '9 + 1
2540: A592 B0 B3      BCS FRMPT5
2550: A594 29 0F      AND #0F
2560: A596 48          PHA
2570: A597 20 91 A8    JSR TIMTEN      ;MULTIPLY TEMP BY 10
2580: A59A 68          PLA
2590: A59B 18          CLC
2600: A59C 65 75      ADC TEMP      ;ADD TO PRINT NUMBER
2610: A59E 85 75      STA TEMP      ;TEMP IS PRINT NUMBER
2620: A5A0 06 75      ASL TEMP      ;TIMES 2 FOR POSIT
2630: A5A2 F0 19      BEQ FRM20      ;NO ORDER SET
2640: A5A4 A4 76      LDY TEMP2      ;GET MAX FIELD NUMBER
2650: A5A6 C8          INY
2660: A5A7 C4 75      CPY TEMP      ;IS ORDER NUMBER OK
2670: A5A9 90 9C      BCC FRMPT5      ;NO-ERROR
2680: A5AB A4 75      LDY TEMP      ;YES-GO ON
2690: A5AD 88          DEY      ;PT 2-CORRECT LOCATON
2700: A5AE 88          DEY      ;MOVE TO PART 1
2710: A5AF A6 82      LDX CFIELD      ;GET FIELD NUMBER
2720: A5B1 E8          INX      ;UP ONE TO START AT 1
2730: A5B2 8A          TXA
2740: A5B3 91 2F      STA (PFRMPT),Y ;STORE IT
2750: A5B5 C8          INY
2760: A5B6 A5 0E      LDA TYPE      ;GET TYPE
2770: A5B8 91 2F      STA (PFRMPT),Y
2780: A5BA 4C 16 A5    JMP FRMP42

;
2800: A5BD A0 01      LDY #1      ;MOVE TO PART 2
2810: A5BF B1 2F      LDA (PFRMPT),Y
2820: A5C1 F0 EB      BEQ FRM14      ;FIND FIRST HOLE
2830: A5C3 C8          INY
2840: A5C4 C8          INY
2850: A5C5 C4 76      CPY TEMP2      ;TEST FOR END
2860: A5C7 90 F6      BCC FRM21      ;NO-TRY AGAIN
2870: A5C9 B0 E3      BCS FRM14      ;ALWAYS-STORE AT END

;
2890: A5CB A5 0E      LDA TYPE      ;ANYTHING DEFINED
2900: A5CD D0 0B      BNE FRMP50
2910: A5CF 20 0B B6    JSR CLEARB
2920: A5D2 A2 23      LDX #35      ;'NO FORMAT...
2930: A5D4 20 BC B9    JSR MESSAG
2940: A5D7 4C F4 A4    JMP FRMP46      ;GO TRY AGAIN

;
2960: A5DA 20 0B B6    JSR CLEARB
2970: A5DD A2 10      LDX #16      ;'LEFT MARGIN...
2980: A5DF 20 BC B9    JSR MESSAG
2990: A5E2 A0 0D      LDY #13
3000: A5E4 A5 35      LDA POINTC      ;GET PREV LEFT MARGIN
3010: A5E6 20 11 A8    JSR GETBYT      ;GO GET TWO BYTES
3020: A5E9 B0 5E      BCS FRMTTE      ;<F7> EXIT
3030: A5EB A4 76      LDY TEMP2      ;GET TABLE END
3040: A5ED C8          INY
3050: A5EE 85 35      STA POINTC
3060: A5F0 91 2F      STA (PFRMPT),Y

;
3080: A5F2 20 0B B6    JSR CLEARB
3090: A5F5 A2 0F      LDX #15      ;'HOW MANY LINES...
3100: A5F7 20 BC B9    JSR MESSAG
3110: A5FA A0 20      LDY #32
3120: A5FC A5 36      LDA POINTC+1      ;GET PREV LINES BETWN
3130: A5FE 20 11 A8    JSR GETBYT
3140: A601 B0 46      BCS FRMTTE      ;<F7> EXIT
3150: A603 A4 76      LDY TEMP2      ;GET TABLE END
3160: A605 C8          INY
3170: A606 C8          INY
3180: A607 85 36      STA POINTC+1

```

```

3190: A609 91 2F STA (PFRMPT),Y
3200: A60B 4C 3F A4 JMP FPRNT ;BACK TO BEGIN QUESTION

```

```

;
; ROUTINE TO OPEN PRINTER FILE
; AND CALL SEARCH TO GET DATA
; TO PRINT OUT-CLOSED FILE AT END
;

```

```

3260: A60E 20 0B B6 FRMTT1 JSR CLEARB
3270: A611 A9 00 LDA #0 ;OPEN PRINTER FILE
3280: A613 85 90 STA STATUS
3290: A615 20 BD FF JSR SETNAM
3300: A618 A9 04 LDA #4
3310: A61A A2 04 LDX #4
3320: A61C A0 00 LDY #0
3330: A61E 20 BA FF JSR SETLFS
3340: A621 20 C0 FF JSR OPEN
3350: A624 A2 04 LDX #4
3360: A626 20 C9 FF JSR CHKOUT ;OPEN OUT CHANNEL
3370: A629 A6 90 LDX STATUS
3380: A62B D0 09 BNE FPRTER ;PRINT ERROR
3390: A62D E6 18 INC PRTFLG ;SET PRINT FLAG
3400: A62F 20 C9 AA JSR SEARCH ;GO DO SEARCH
3410: A632 A5 90 LDA STATUS ;CHECK ERROR
3420: A634 F0 05 BEQ FRMTT2 ;NO ERROR
3430: A636 A2 14 FPRTER LDX #20 ;CHECK PRINTER...
3440: A638 20 BC B9 JSR MESSAG
3450: A63B A9 04 FRMTT2 LDA #4 ;CLOSE PRINTER FILE
3460: A63D 20 C3 FF JSR CLOSE
3470: A640 20 CC FF JSR CLRCHN
3480: A643 A9 00 LDA #0
3490: A645 85 18 STA PRTFLG ;CLEAR PRINT FLAG
3500: A647 F0 03 BEQ FRMTT2 ;ALWAYS

```

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;
3520: A649 20 0B B6 FRMTTE JSR CLEARB
3530: A64C 20 1C B6 FRMTTD JSR CLRFLD ;CLEAR FIELDS
3540: A64F 4C F1 A3 JMP OPTIN1 ;GO BACK TO OPTION

```

```

;
; ROUTINE TO OPEN WP FILE AND CALL
; SEARCH TO FIND DATA-CLOSES FILE
;

```

```

3590: A652 20 F7 B5 FRMWWW JSR CLERTB ;CLEAR BOTH
3600: A655 20 AB A3 JSR SAVFLN ;SAVE FILE NAME
3610: A658 A2 27 FRMWW1 LDX #39 ;WP FILE...
3620: A65A 20 BC B9 JSR MESSAG
3630: A65D 20 0A A1 JSR GETWPF ;GET WP FILE NAME
3640: A660 B0 7E BCS FRMW6 ;<F7> PRESSED-EXIT
3650: A662 A2 22 FRMW2 LDX #34 ;SAVING...
3660: A664 20 BC B9 JSR MESSAG
3670: A667 20 07 A3 JSR DSKTST ;IS DRIVE ON
3680: A66A B0 2E BCS FRMW3 ;NO-GO TO TAPE
3690: A66C 20 1D A3 JSR DSKBAM ;IS DISK FORMATTED
3700: A66F B0 E7 BCS FRMWW1 ;NO-NO WANT TO EITHER
3710: A671 A9 00 LDA #0
3720: A673 20 BD FF JSR SETNAM ;NO FILE NAME
3730: A676 A9 0F LDA #15
3740: A678 A2 08 LDX #8
3750: A67A A0 0F LDY #15
3760: A67C 20 BA FF JSR SETLFS ;SETUP FOR ERROR OPEN
3770: A67F 20 C0 FF JSR OPEN ;OPEN ERROR CHANNEL
3780: A682 A6 08 LDX NAMLEN
3790: A684 A0 00 LDY #0 ;ADD ON ',5,W
3800: A686 B9 D3 A3 FRMW21 LDA DSKSEQ,Y
3810: A689 9D E0 CF STA FILNAM,X
3820: A68C E8 INX
3830: A68D C8 INY
3840: A68E C0 04 CPY #4 ;4 CHARACTERS

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```

3850: A690 D0 F4      BNE FRMW21
3860: A692 86 08      STX NAMLEN      ;SAVE NEW LENGTH
3870: A694 A2 08      LDX #8
3880: A696 A0 02      LDY #2      ;SECONDARY ADDRESS
3890: A698 D0 05      BNE FRMW4      ;ALWAYS

;
3910: A69A 20 F3 A0 FRMW3 JSR SETTAP ;SETUP FOR TAPE
3920: A69D A0 01      LDY #1      ;TAPE SECONDARY ADDR
3930: A69F A9 04      LDA #4      FRMW4
3940: A6A1 20 BA FF      JSR SETLFS
3950: A6A4 A5 08      LDA NAMLEN
3960: A6A6 A2 E0      LDX #<FILNAM
3970: A6A8 A0 CF      LDY #>FILNAM
3980: A6AA 20 BD FF      JSR SETNAM
3990: A6AD 20 C0 FF      JSR OPEN
4000: A6B0 20 32 A7      JSR SEQERR      ;TEST ERROR STATUS
4010: A6B3 B0 34      BCS FRMWER      ;YES ERROR
4020: A6B5 A2 04      LDX #4
4030: A6B7 20 C9 FF      JSR CHKOUT      ;OPEN OUT CHANNEL
4040: A6BA 20 32 A7      JSR SEQERR      ;TEST STATUS
4050: A6BD B0 2A      BCS FRMWER
4060: A6BF A9 80      LDA #$80
4070: A6C1 85 18      STA PRTFLG      ;SET WP FILE FLAG
4080: A6C3 20 C9 AA      JSR SEARCH
4090: A6C6 B0 21      BCS FRMWER      ;ERROR ON WRITE
4100: A6C8 90 03      BCC FRMW5      ;NO ERROR

;
4120: A6CA 20 E6 A2 FRMWEO JSR FRTERR ;PRINT ERROR
4130: A6CD A9 04      LDA #4      FRMW5
4140: A6CF 20 C3 FF      JSR CLOSE
4150: A6D2 A9 0F      LDA #15      ;CLOSE ERROR
4160: A6D4 20 C3 FF      JSR CLOSE
4170: A6D7 20 CC FF      JSR CLRCHN
4180: A6DA A9 00      LDA #0
4190: A6DC 85 18      STA PRTFLG      ;TURN OFF PRINT FLAG
4200: A6DE 85 9D      STA MSGMOD      ;TURN MESSAGES OFF
4210: A6E0 20 BE A3 FRMW6 JSR RESFLN ;RESTORE FILENAME
4220: A6E3 20 FA B5      JSR CLEAR      ;CLEAR TOP
4230: A6E6 4C F1 A3      JMP OPTIN1      ;GO BACK TO OPTION

;
4250: A6E9 20 07 A3 FRMWER JSR DSKTST ;WP FILE ERROR
4260: A6EC B0 DF      BCS FRMW5      ;TAPE-NO ERRORS
4270: A6EE A9 0F      LDA #15
4280: A6F0 20 C3 FF      JSR CLOSE      ;CLOSE ERROR CHANNEL
4290: A6F3 20 CC FF      JSR CLRCHN
4300: A6F6 AD 00 02      LDA INPBUF
4310: A6F9 C9 36      CMP #"6"      ;FILE EXISTS ERROR
4320: A6FB D0 CD      BNE FRMWEO
4330: A6FD AD 01 02      LDA INPBUF+1
4340: A700 C9 33      CMP #"3"
4350: A702 D0 C6      BNE FRMWEO
4360: A704 A2 17      LDX #23      ;'REPLACE...'
4370: A706 20 BC B9      JSR MESSAG
4380: A709 20 A7 B5      JSR GETCHR      ;GET A CHARACTER
4390: A70C C9 59      CMP #"Y"
4400: A70E D0 BA      BNE FRMWEO      ;NO 'Y'-GO PRINT ERROR
4410: A710 A2 00      LDX #0
4420: A712 BD D7 A3 FRMWE1 LDA ERASDT,X
4430: A715 9D DD CF      STA FILNAM-3,X
4440: A718 E8      INX
4450: A719 E0 03      CPX #3
4460: A71B D0 F5      BNE FRMWE1
4470: A71D A6 08      LDX NAMLEN      ;DELETE OLD VERSION
4480: A71F CA      DEX      ;MINUS 1-'SO - ','W,S
4490: A720 8A      TXA
4500: A721 A2 E0      LDX #<FILNAM

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4510: A723 CA DEX
4520: A724 CA DEX
4530: A725 CA DEX
4540: A726 A0 CF LDY #>FILNAM
4550: A728 20 91 A2 JSR DSKERO
4560: A72B B0 9D BCS FRMWEO ;GO PRINT ERROR
4570: A72D A2 08 LDX #8
4580: A72F 4C 62 A6 JMP FRMW2 ;GO SAVE AGAIN

;
4600: A732 A5 BA SEQERR LDA CURDEV
4610: A734 C9 08 CMP #8 ;IS IT DISK DRIVE
4620: A736 90 03 BCC SEQERE ;NO-NO DISK TEST
4630: A738 4C C0 A2 JMP GETERR ;TEST & RETURN
4640: A73B A5 90 SEQERE LDA STATUS
4650: A73D F0 01 BEQ SEQERD
4660: A73F 38 SEC
4670: A740 60 SEQERD RTS

;
; ROUTINE TO PRINT OUT RECORD
; POINTED TO BY -PCRREC- IN
; DEFINED FORMAT
;
4730: A741 A2 00 PRTREC LDX #0
4740: A743 86 75 STX TEMP ;CLEAR ORDER NUMBER
4750: A745 E8 INX
4760: A746 86 78 STX TEMP4 ;SET NEW LINE

;
4780: A748 20 32 A7 PRTRC1 JSR SEQERR ;YES-TEST ERROR
4790: A74B 90 01 BCC PRTR11
4800: A74D 60 RTS ;'C IS SET-RETURN

;
4820: A74E A5 78 PRTR11 LDA TEMP4 ;IS IT NEWLINE
4830: A750 F0 09 BEQ PRTRC2 ;NO
4840: A752 A5 18 LDA PRTFLG ;IS IT DISK DRIVE
4850: A754 30 05 BMI PRTRC2 ;YES-NO LEFT MARGIN
4860: A756 A6 35 LDX POINTC ;GET LEFT MARGIN
4870: A758 20 04 A8 JSR SNDSPC ;SEND SPACES

;
4890: A75B A9 00 PRTRC2 LDA #0
4900: A75D 85 78 STA TEMP4 ;NOT NEW LINE
4910: A75F A6 33 LDX PCRREC
4920: A761 A4 34 LDY PCRREC+1
4930: A763 E8 INX ;DUMP LEADING ZERO
4940: A764 D0 01 BNE PRTR22
4950: A766 C8 INY
4960: A767 86 22 PRTR22 STX POINTA
4970: A769 84 23 STY POINTA+1
4980: A76B A5 75 LDA TEMP ;GET ORDER NUMBER
4990: A76D 0A ASL ;TIMES TWO
5000: A76E A8 TAY
5010: A76F B1 2F LDA (FFRMPT),Y ;GET FIELD NUMBER
5020: A771 29 3F AND #$3F ;MASK FIELD TYPE
5030: A773 AA TAX
5040: A774 CA DEX ;MAKE START AT '0
5050: A775 BD 07 CF LDA FLDTBL,X
5060: A778 48 PHA ;SAVE CURRENT LENGTH
5070: A779 C8 INY
5080: A77A B1 2F LDA (FFRMPT),Y ;GET WHAT TO DO
5090: A77C 85 76 STA TEMP2 ;SAVE IT
5100: A77E CA PRTRC3 DEX
5110: A77F 30 10 BMI PRTRC4 ;TEST FOR END
5120: A781 BD 07 CF LDA FLDTBL,X
5130: A784 29 3F AND #$3F ;MASK TYPE OF FIELD
5140: A786 18 CLC
5150: A787 65 22 ADC POINTA ;COMPUTE OFFSET
5160: A789 85 22 STA POINTA

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5170:  A78B 90 F1      BCC  PRTRC3
5180:  A78D E6 23      INC  POINTA+1
5190:  A78F D0 ED      BNE  PRTRC3      ; ALWAYS

;
5210:  A791 68          PRTRC4  PLA          ; GET LENGTH
5220:  A792 29 3F      AND  ##3F          ; MASK OFF TYPE

;
5240:  A794 A6 91      LDX  STOPKY          ; TEST RUN/STOP
5250:  A796 E0 7F      CPX  ##7F
5260:  A798 D0 07      BNE  PRTRC0          ; NO STOP
5270:  A79A A2 01      LDX  #1
5280:  A79C 20 07 A8    JSR  SNDCR          ; SEND ONE <CR>
5290:  A79F 38          SEC                  ; SET STOP FLAG
5300:  A7A0 60          RTS

;
5320:  A7A1 AA          PRTRC0  TAX
5330:  A7A2 A5 76      LDA  TEMP2          ; TEST TYPE
5340:  A7A4 F0 56      BEQ  PRTRDN          ; ZERO IS END
5350:  A7A6 C9 A0      CMP  ##A0          ; IS IT 'S, 'D, 'T, 'P
5360:  A7A8 B0 0E      BCS  PRTRB1          ; NO-DONT PACK
5370:  A7AA 8A          TXA
5380:  A7AB A8          TAY                  ; PUT END IN 'Y
5390:  A7AC 88          PRTRB2  DEY
5400:  A7AD F0 06      BEQ  PRTRB3
5410:  A7AF B1 22      LDA  (POINTA),Y
5420:  A7B1 C9 20      CMP  #" "
5430:  A7B3 F0 F7      BEQ  PRTRB2
5440:  A7B5 98          PRTRB3  TYA
5450:  A7B6 AA          TAX
5460:  A7B7 E8          INX
5470:  A7B8 A0 00      PRTRB1  LDY  #0
5480:  A7BA B1 22      PRTRC6  LDA  (POINTA),Y
5490:  A7BC 24 18      BIT  PRTRFLG          ; TEST FOR DISK FILE
5500:  A7BE 10 06      BPL  PRTR60          ; NO-NO CONVERSION
5510:  A7C0 C9 41      CMP  #"A"          ; CONVERT 'A & UP
5520:  A7C2 90 02      BCC  PRTR60
5530:  A7C4 09 80      ORA  ##80          ; TO UPPERCASE
5540:  A7C6 20 D2 FF PRTR60 JSR  OUTPUT
5550:  A7C9 C8          INY
5560:  A7CA CA          DEX
5570:  A7CB D0 ED      BNE  PRTRC6

;
5590:  A7CD A2 01      LDX  #1
5600:  A7CF A5 76      LDA  TEMP2          ; GET WHAT TO DO AFTR
5610:  A7D1 C9 90      CMP  ##90          ; 'P - PACK
5620:  A7D3 F0 07      BEQ  PRTRC7          ; YES-PRINT ONE SPACE
5630:  A7D5 C9 B0      CMP  ##B0          ; 'O
5640:  A7D7 90 08      BCC  PRTRC8
5650:  A7D9 29 0F      AND  ##0F
5660:  A7DB AA          TAX
5670:  A7DC 20 04 A8 PRTRC7 JSR  SNDSFC          ; SEND 'X SPACES
5680:  A7DF 30 0F      BMI  PRTRCA          ; ALWAYS

;
5700:  A7E1 C9 93      PRTRC8  CMP  ##93          ; 'S - SINGLE
5710:  A7E3 F0 06      BEQ  PRTRC9
5720:  A7E5 E8          INX
5730:  A7E6 C9 84      CMP  ##84          ; 'D - DOUBLE
5740:  A7E8 F0 01      BEQ  PRTRC9
5750:  A7EA E8          INX                  ; HAS TO BE TRIPLE
5760:  A7EB E6 78      PRTRC9  INC  TEMP4          ; NEWLINE FLAG
5770:  A7ED 20 07 A8    JSR  SNDCR          ; SEND 'X <CR>S

;
5790:  A7F0 E6 75      PRTRCA  INC  TEMP          ; GOTO NEXT FIELD
5800:  A7F2 A5 75      LDA  TEMP
5810:  A7F4 CD 00 CF      CMP  MAXFLD
5820:  A7F7 B0 03      BCS  PRTRDN

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5830:  A7F9 4C 48 A7      JMP  PRTRC1      ;GO BACK FOR NEXT FLD
;
5850:  A7FC A6 36      PRTRDN  LDX  POINTC+1  ;GET LNS BETWN
5860:  A7FE E8          INX          ;PLUS ONE FOR EOL
5870:  A7FF 20 07 A8      JSR  SNDCR
5880:  A802 18          CLC          ;NO STOP KEY
5890:  A803 60      PRTRTS  RTS
;
; SUBROUTINE TO PRINT 'X' NUMBER
; OF CHARACTER SENT IN 'A'
;
5940:  A804 A9 20      SNDSPC  LDA  #" "
5950:  A806 2C          .BYT  $2C      ;BIT OFCODE
5960:  A807 A9 0D      SNDCR   LDA  #13      ;<CR>
5970:  A809 CA          SNDCHR  DEX
5980:  A80A 30 F7      BMI  PRTRTS      ;ALL DONE
5990:  A80C 20 D2 FF      JSR  OUTPUT      ;SEND CHARACTER
6000:  A80F 90 F8      BCC  SNDCHR      ;ALWAYS
;
; ROUTINE TO GET TWO DIGITS AND
; CONVERT THEM TO ONE BYTE
;
6050:  A811 48          GETBYT  PHA          ;SAVE VALUE
6060:  A812 A2 18      LDX  #24          ;BOTTOM LINE
6070:  A814 18          CLC
6080:  A815 20 F0 FF      JSR  PLOT
6090:  A818 84 75      STY  TEMP
6100:  A81A 68          PLA          ;GET PREVIOUS VALUE
6110:  A81B 48          PHA
6120:  A81C 20 9D A8      JSR  DIVTEN      ;PRINT PREVIOUS VALUE
6130:  A81F A4 75      LDY  TEMP
6140:  A821 84 D3      STY  COLNUM      ;RESTORE CRSR TO BEGIN
6150:  A823 68          PLA          ;GET PREVIOUS VALUE
6160:  A824 85 75      STA  TEMP      ;AND SET FOR <CR> ONLY
6170:  A826 A9 00      LDA  #0
6180:  A828 85 78      STA  TEMP4
6190:  A82A A9 00      GETBY1  LDA  #0
6200:  A82C 85 CC      STA  BLIKSW      ;BLINK ON
6210:  A82E 20 A7 B5 GETBY2 JSR  GETCHR
6220:  A831 C9 14      CMP  #20      ;DELETE
6230:  A833 F0 3F      BEQ  GETDEL
6240:  A835 C9 88      CMP  #PF7      ;<F7>
6250:  A837 F0 38      BEQ  GETBY6      ;'C WILL BE SET
6260:  A839 C9 0D      CMP  #13      ;<CR>
6270:  A83B F0 31      BEQ  GETBY5
6280:  A83D A6 78      LDX  TEMP4      ;GET PASS NUMBER
6290:  A83F E0 02      CPX  #2
6300:  A841 F0 EB      BEQ  GETBY2      ;NO CHARACTERS AFTER 2
6310:  A843 C9 30      CMP  #"0"
6320:  A845 90 E7      BCC  GETBY2
6330:  A847 C9 3A      CMP  #";"      ;'9 + 1
6340:  A849 B0 E3      BCS  GETBY2
6350:  A84B 20 76 B5 GETBY3 JSR  EDOUT      ;PRINT IT
6360:  A84E 29 0F      AND  #$0F      ;CONVERT TO BINARY
6370:  A850 E0 00      CPX  #0      ;WHICH PASS
6380:  A852 D0 0C      BNE  GETBY3      ;FIRST CHAR ALREADY IN
6390:  A854 E6 78      INC  TEMP4
6400:  A856 85 75      GETBY0  STA  TEMP
6410:  A858 A9 20      LDA  #" "
6420:  A85A A4 D3      LDY  COLNUM
6430:  A85C 91 D1      STA  (SCNLIN),Y
6440:  A85E D0 CA      BNE  GETBY1      ;ALWAYS-GET NEXT CHAR
;
6460:  A860 48          GETBY3  PHA          ;SAVE CHAR
6470:  A861 20 91 A8      JSR  TIMTEN      ;MULTIPLY TEMP BY TEN
6480:  A864 68          PLA

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6490:  A865 18          CLC
6500:  A866 65 75      ADC  TEMP
6510:  A868 85 75      STA  TEMP
6520:  A86A E6 78      INC  TEMP4
6530:  A86C D0 BC      BNE  GETBY1 ; ALWAYS-GO GET NEXT
;
6550:  A86E 18          GETBY5 CLC ; NO <F7>
6560:  A86F A5 75      LDA  TEMP ; PUT VALUE IN 'A
6570:  A871 4C 7C B5    GETBY6 JMP  BLKOFF ; OFF & RETURN
;
6590:  A874 A6 78      GETDEL LDX  TEMP4 ; WHICH PASS
6600:  A876 F0 B6      BEQ  GETBY2 ; NOTHING IN YET
6610:  A878 20 7C B5    JSR  BLKOFF ; BLINK CRSR OFF
6620:  A87B C6 D3      DEC  COLNUM
6630:  A87D A9 00      LDA  #0
6640:  A87F C6 78      DEC  TEMP4
6650:  A881 F0 D3      BEQ  GETBY0 ; ONE DIGIT IN
6660:  A883 A5 75      LDA  TEMP ; SAVE BOTTOM HALF
6670:  A885 A2 FF      LDX  #$FF ; -1
6680:  A887 38          SEC
6690:  A888 E9 0A      GETDL1 SBC  #10
6700:  A88A E8          INX ; COUNT UP
6710:  A88B B0 FB      BCS  GETDL1 ; TILL OVERFLOW
6720:  A88D 8A          TXA ; PUT COUNT IN 'A
6730:  A88E 4C 56 AB    JMP  GETBY0
;
; ROUTINE TO MULTIPLY TEMP * 10
;
6770:  A891 06 75      TIMTEN ASL  TEMP ; TEMP * 10
6780:  A893 A5 75      LDA  TEMP ; SAVE TIMES 2
6790:  A895 0A          ASL
6800:  A896 0A          ASL
6810:  A897 18          CLC
6820:  A898 65 75      ADC  TEMP ; ADD TOGETHER = *10
6830:  A89A 85 75      STA  TEMP
6840:  A89C 60          RTS
;
; ROUTINE TO DIVIDE BY TEN
; AND PRINT 'Y = COLUMN POSTION
; 'A = VALUE
;
6900:  A89D 48          DIVTEN PHA ; SAVE VALUE
6910:  A89E A9 30      LDA  #$30
6920:  ABA0 A6 D6      LDX  LINNUM ; GET LINNUM
6930:  ABA2 E0 17      CPX  #23
6940:  ABA4 B0 06      BCS  DIVTNO
6950:  ABA6 B1 D1      LDA  (SCNLIN),Y
6960:  ABAB 10 2A      BPL  DIVTDN ; NO ROOM IN FIELD
6970:  ABAA A9 B0      LDA  #$B0
6980:  ABAC 85 17      DIVTNO STA  SWPFLG ; SAVE ORA VALUE
6990:  ABAE 68          PLA ; GET BACK VALUE
7000:  ABAF C9 0A      CMP  #10 ; SAVE NUMBER
7010:  ABB1 90 1C      BCC  DIVTN1
7020:  ABB3 A2 FF      LDX  #$FF ; -1
7030:  ABB5 38          SEC ; DIVIDE BY 10
7040:  ABB6 E8          DIVTN2 INX
7050:  ABB7 E9 0A      SBC  #10
7060:  ABB9 B0 FB      BCS  DIVTN2
7070:  ABBB 69 0A      ADC  #10 ; RESTORE OVERFLOW
7080:  ABBD 48          PHA ; SAVE REMAINDER
7090:  ABBE A5 17      LDA  SWPFLG ; IS IT FIELD DATA
7100:  ABC0 10 06      BPL  DIVTN3 ; NO
7110:  ABC2 C8          INY ; YES-TEST FOR ROOM
7120:  ABC3 B1 D1      LDA  (SCNLIN),Y ; IN FIELD
7130:  ABC5 10 0D      BPL  DIVTDN ; NO ROOM-EXIT
7140:  ABC7 88          DEY

```

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7150:  A8C8 8A      TXA
7160:  A8C9 05 17   ORA  SWFFLG      ;MAKE ASCII
7170:  A8CB 91 D1   STA  (SCNLIN),Y  ;SAVE TENS
7180:  A8CD C8      INY
7190:  A8CE 68      PLA      ;GET REMAINDER
7200:  A8CF 05 17   ORA  SWFFLG      ;MAKE ASCII
7210:  ABD1 91 D1   STA  (SCNLIN),Y  ;SAVE ONES
7220:  ABD3 60      RTS

      ;
7240:  ABD4 68      DIVTDN  PLA      ;FIX STACK
7250:  ABD5 60      RTS

      ;
      ; ROUTINE TO SAVE RAM
      ;
7290:  ABD6 20 FA B5 SAVE      JSR  CLEART
7300:  ABD9 20 05 A1      JSR  GETFN
7310:  ABDC 90 03      BCC  SAVEA      ;'C SET ON <F7>
7320:  ABDE 4C EB A3      JMP  OPTION
7330:  ABE1 A2 22      SAVEA  LDX  #34      ;'SAVING...
7340:  ABE3 20 BC B9      JSR  MESSAG
7350:  ABE6 20 07 A3      JSR  DSKTST      ;IS DRIVE ON
7360:  ABE9 B0 09      BCS  SAVE0
7370:  ABEB 20 1D A3      JSR  DSKBAM      ;IS DISK FORMATTED
7380:  ABEE B0 E6      BCS  SAVE      ;'C SET-DID/NEED FOMT
7390:  ABF0 A2 08      LDX  #8
7400:  ABF2 D0 03      BNE  SAVE1      ;ALWAYS
7410:  ABF4 20 F3 A0 SAVE0  JSR  SETTAP      ;SETUP FOR TAPE
7420:  ABF7 A9 01      SAVE1  LDA  #1
7430:  ABF9 A0 01      LDY  #1
7440:  ABFB 20 BA FF      JSR  SETLFS
7450:  ABFE A5 08      LDA  NAMLEN
7460:  A900 A2 E0      LDX  #<FILNAM
7470:  A902 A0 CF      LDY  #>FILNAM
7480:  A904 20 BD FF      JSR  SETNAM
7490:  A907 A6 2D      LDX  PLSREC      ;GET END POINTER
7500:  A909 A4 2E      LDY  PLSREC+1
7510:  A90B A9 2B      LDA  #<PBGSDT
7520:  A90D 20 D8 FF      JSR  SAVERM      ;GO SAVE RAM
7530:  A910 20 E7 FF      JSR  CLALL
7540:  A913 A9 00      LDA  #0
7550:  A915 85 9D      STA  MSGMOD
7560:  A917 A5 90      LDA  STATUS
7570:  A919 D0 09      BNE  SAVERR
7580:  A91B 4C EB A3 SAVE12  JMP  OPTION

      ;
7600:  A91E 20 E6 A2 SAVER0  JSR  PRterr      ;PRINT ERROR
7610:  A921 4C D6 A8      JMP  SAVE      ;GO BACK TO SAVE

      ;
7630:  A924 20 07 A3 SAVERR  JSR  DSKTST      ;SAVE ERROR
7640:  A927 B0 F2      BCS  SAVE12      ;TAPE-NO ERRORS
7650:  A929 20 8F A2      JSR  DSKERR
7660:  A92C AD 00 02      LDA  INPBUF
7670:  A92F C9 36      CMP  #"6"      ;FILE EXISTS ERROR
7680:  A931 D0 EB      BNE  SAVER0      ;GO PRINT ERROR
7690:  A933 AD 01 02      LDA  INPBUF+1
7700:  A936 C9 33      CMP  #"3"
7710:  A938 D0 E4      BNE  SAVER0      ;GO PRINT ERROR
7720:  A93A A2 17      LDX  #23      ;REPLACE
7730:  A93C 20 BC B9      JSR  MESSAG
7740:  A93F 20 A7 B5      JSR  GETCHR
7750:  A942 C9 59      CMP  #"Y"
7760:  A944 D0 D8      BNE  SAVER0      ;GO PRINT ERROR
7770:  A946 20 0B B6      JSR  CLEARB
7780:  A949 A2 22      LDX  #34      ;'SAVING...
7790:  A94B 20 BC B9      JSR  MESSAG
7800:  A94E A2 00      LDX  #0      ;ADD 'SO

```

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7800: A950
7810: A950 BD D7 A3 SAVE11 LDA ERASDT,X
7820: A953 9D DD CF STA FILNAM-3,X
7830: A956 E8 INX
7840: A957 E0 03 CPX #3
7850: A959 D0 F5 BNE SAVE11
7860: A95B A6 08 LDX NAMLEN ;DELETE OLD VERSION
7870: A95D E8 INX
7880: A95E E8 INX
7890: A95F E8 INX
7900: A960 8A TXA
7910: A961 A2 E0 LDX #<FILNAM
7920: A963 CA DEX
7930: A964 CA DEX
7940: A965 CA DEX
7950: A966 A0 CF LDY #>FILNAM
7960: A968 20 91 A2 JSR DSKERO
7970: A96B B0 B1 BCS SAVERO ;GO PRINT ERROR
7980: A96D A2 08 LDX #8 ;GO SAVE NEW
7990: A96F 4C F7 A8 JMP SAVE1

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8010: A972 ; .FILE8,"FILER.PAL PT3"

```

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; MICROFILER PT3

```

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;

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;

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```

; RETRIEVE MENU

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;

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;

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```

160: A972 20 FA B5 RETREV JSR CLEAR
170: A975 20 EA B3 JSR SCRNP
180: A978 A2 01 LDX #1 ;RETRIEVE MENU
190: A97A 20 BC B9 JSR MESSAG
200: A97D 20 1C B6 JSR CLRFLD
210: A980 A5 31 RETRES LDA FBGREC
220: A982 A4 32 LDY FBGREC+1
230: A984 85 33 STA PCRREC
240: A986 84 34 STY PCRREC+1
250: A988 A9 00 LDA #0
260: A98A 85 77 STA TEMP3 ;NOTHING DISPLAY
270: A98C 85 18 STA FRTFLG ;CANCEL PRINT MODE
280: A98E 20 A7 B5 RETGET JSR GETCHR
290: A991 C9 88 RETGT1 CMP #PF7 ;<F7>
300: A993 F0 44 BEQ RETV0
310: A995 85 75 STA TEMP ;SAVE KEY
320: A997 38 SEC ;TEST FOR NO RECORDS
330: A998 A5 32 LDA FBGREC+1
340: A99A C5 2E CMP FLSREC+1
350: A99C 90 11 BCC RETV2
360: A99E A5 31 LDA FBGREC
370: A9A0 C5 2D CMP FLSREC
380: A9A2 90 0B BCC RETV2
390: A9A4 20 0B B6 JSR CLEARB
400: A9A7 A2 05 LDX #5
410: A9A9 20 BC B9 JSR MESSAG ;'EMPTY FILE...'
420: A9AC 4C 8E A9 JMP RETGET
430: A9AF A5 FF RETV2 LDA MSGFL
440: A9B1 F0 07 BEQ RETV3
450: A9B3 20 0B B6 JSR CLEARB
460: A9B6 A9 00 LDA #0
470: A9B8 85 FF STA MSGFL
480: A9BA A5 75 RETV3 LDA TEMP ;NO REDRAW IF PRNT
490: A9BC C9 50 CMP #"P" ;PRINT
500: A9BE D0 06 BNE RETV31
510: A9C0 20 5B AA JSR PRNT
520: A9C3 4C 8E A9 JMP RETGET
530: A9C6 A5 FE RETV31 LDA SCMODE ;TEST FOR DISTORT

```

```

540:    A9C8 F0 03      BEQ  RETV33
550:    A9CA 20 EA B3    JSR  SCRNPFT      ; YES-REDRAW SCREEN
560:    A9CD A5 75      RETV33 LDA  TEMP
570:    A9CF C9 46      CMP  #"F"      ; FORWARD
580:    A9D1 D0 09      BNE  RETV4
590:    A9D3 20 D2 B0    JSR  FORWRD
600:    A9D6 4C 8E A9    JMP  RETGET

;
620:    A9D9 4C EB A3    RETV0  JMP  OPTION

;
640:    A9DC C9 42      RETV4  CMP  #"B"      ; BACKWARD
650:    A9DE D0 09      BNE  RETV5
660:    A9E0 20 B1 B0    JSR  BAKWRD
670:    A9E3 20 06 B1    JSR  DISREC
680:    A9E6 4C 8E A9    JMP  RETGET
690:    A9E9 C9 52      RETV5  CMP  #"R"      ; RESET
700:    A9EB F0 85      BEQ  RETREV
710:    A9ED C9 53      CMP  #"S"      ; SEARCH
720:    A9EF D0 10      BNE  RETV7
730:    A9F1 20 C9 AA    JSR  SEARCH
740:    A9F4 90 C4      BCC  RETV3      ; WAS THERE ERROR
750:    A9F6 20 0B B6    JSR  CLEARB
760:    A9F9 A2 07      LDX  #7      ; 'NO SEARCH KEY...
770:    A9FB 20 BC B9    JSR  MESSAG
780:    A9FE 4C 8E A9    JMP  RETGET
790:    AA01 C9 41      RETV7  CMP  #"A"      ; AVERAGE
800:    AA03 F0 04      BEQ  RETV88
810:    AA05 C9 4D      CMP  #"M"      ; SUM
820:    AA07 D0 08      BNE  RETV9
830:    AA09 E6 FE      RETV88 INC  SCMODE    ; SET FLAG-REDO
840:    AA0B 20 9E AD    JSR  SUMMRY
850:    AA0E 4C 80 A9    JMP  RETRES
860:    AA11 C9 43      RETV9  CMP  #"C"      ; CHANGE
870:    AA13 D0 0C      BNE  RETVA
880:    AA15 A6 77      LDX  TEMP3      ; IS IT DISPLAYED
890:    AA17 F0 19      BEQ  RETVER    ; NO-PRINT ERROR
900:    AA19 20 3A AA    JSR  CHANGR    ; GO CHANGE RECORD
910:    AA1C B0 BB      BCS  RETV0      ; <F7> (GO TO OPTION)
920:    AA1E 4C 8E A9    JMP  RETGET    ; GET NEXT CHARACTER
930:    AA21 C9 44      RETVA  CMP  #"D"      ; DELETE
940:    AA23 D0 0A      BNE  RETVB
950:    AA25 A6 77      LDX  TEMP3
960:    AA27 F0 09      BEQ  RETVER
970:    AA29 20 52 B0    JSR  DELETE
980:    AA2C 20 06 B1    JSR  DISREC
990:    AA2F 4C 8E A9    RETVB  JMP  RETGET

;
1010:   AA32 A2 0B      RETVER LDX  #11      ; 'RECORD MUST...
1020:   AA34 20 BC B9    JSR  MESSAG
1030:   AA37 4C 8E A9    JMP  RETGET

;
1050:   AA3A 20 FA B5    CHANGR JSR  CLEART
1060:   AA3D A9 01      LDA  #1
1070:   AA3F 85 FD      STA  CHANGE
1080:   AA41 20 59 B2    JSR  ENTDAT
1090:   AA44 B0 14      CHANGL  BCS  CHANGD    ; <F7> (OPTION)
1100:   AA46 20 6B B1    JSR  CHGDAT
1110:   AA49 90 06      BCC  CHANGC    ; NO ERROR-ALL DONE
1120:   AA4B 20 79 B2    JSR  ENTD3      ; RETRY
1130:   AA4E 4C 44 AA    JMP  CHANGL
1140:   AA51 20 FA B5    CHANGC JSR  CLEART
1150:   AA54 A2 01      LDX  #1
1160:   AA56 20 BC B9    JSR  MESSAG
1170:   AA59 18      CLC
1180:   AA5A 60      CHANGD  RTS

```

: ROUTINE TO SCREEN DUMP RECORD

: DATA TO PRINTER

```

1230:  AA5B A9 00      PRNT      LDA  #0
1240:  AA5D 85 90      STA  STATUS
1250:  AA5F 20 BD FF      JSR  SETNAM
1260:  AA62 A9 04      LDA  #4
1270:  AA64 A2 04      LDX  #4
1280:  AA66 A0 00      LDY  #0
1290:  AA68 20 BA FF      JSR  SETLFS
1300:  AA6B 20 C0 FF      JSR  OPEN
1310:  AA6E A2 04      LDX  #4      ; CHANEL TO OUTPUT
1320:  AA70 20 C9 FF      JSR  CHKOUT
1330:  AA73 A6 90      LDX  STATUS
1340:  AA75 D0 4A      BNE  PRNTER      ; IS PRINTER HOOKED
1350:  AA77 A2 02      LDX  #2
1360:  AA79 A0 00      PRNT0      LDY  #0
1370:  AA7B 18      CLC
1380:  AA7C 20 F0 FF      JSR  PLOT
1390:  AA7F A0 FF      LDY  ##FF      ; 'O - 1
1400:  AA81 C8      PRNT1      INY
1410:  AA82 C0 28      CPY  #40      ; CHARS IN LINE
1420:  AA84 F0 26      BEQ  PRNT3
1430:  AA86 B1 D1      LDA  (SCNLIN),Y
1440:  AA88 C9 20      CMP  #" "
1450:  AA8A F0 F5      BEQ  PRNT1      ; TEST FOR ALL SPCS
1460:  AA8C A0 00      LDY  #0
1470:  AA8E B1 D1      PRNT2      LDA  (SCNLIN),Y
1480:  AA90 29 7F      AND  #$7F      ; MASK OFF REVERSE
1490:  AA92 20 20 B8      JSR  CONASC
1500:  AA95 C9 60      CMP  ##60      ; NO GRAPHICS
1510:  AA97 90 02      BCC  PRNT21
1520:  AA99 A9 20      LDA  #" "      ; MAKE IT SPACE
1530:  AA9B 20 D2 FF      PRNT21      JSR  OUTPUT
1540:  AA9E A5 90      LDA  STATUS
1550:  AAA0 D0 1F      BNE  PRNTER
1560:  AAA2 C8      INY
1570:  AAA3 C0 28      CPY  #40      ; END OF LINE
1580:  AAA5 90 E7      BCC  PRNT2
1590:  AAA7 A9 0D      LDA  #13      ; SEND <CR>
1600:  AAA9 20 D2 FF      JSR  OUTPUT
1610:  AAAC E6 D6      PRNT3      INC  LINNUM      ; NEXT LINE
1620:  AAAD A6 D6      LDX  LINNUM
1630:  AAB0 E0 17      CPX  #23      ; BOTTOM OF SCREEN
1640:  AAB2 90 C5      BCC  PRNT0
1650:  AAB4 A9 0D      LDA  #13      ; SEND <CR> BETWEEN REC
1660:  AAB6 20 D2 FF      JSR  OUTPUT
1670:  AAB9 A9 04      PRNT4      LDA  #4      ; ALL DONE
1680:  AABB 20 C3 FF      JSR  CLOSE
1690:  AABE 4C CC FF      JMP  CLRCHN      ; CLEAR CHAN & RETURN

1710:  AAC1 A2 14      PRNTER      LDX  #20      ; 'CHECK PRINTER...
1720:  AAC3 20 BC B9      JSR  MESSAG
1730:  AAC6 4C B9 AA      JMP  PRNT4

```

:
:
:
: ROUTINE TO SEARCH RECORDS
: AND/OR SORT RECORDS
:

: -----
: SORT & SEARCH TYPES
: -----

: CHARS = SEARCH FULL FIELD
: ± = SEARCH FULL RECORD
: ← = SEARCH FIRST CHARS ONLY
: ↑ = SORT FILE FIRST THEN

```

1890: AAC9 20 EA B3 SEARCH JSR SCRNPFT
1900: AAC0 A2 09 LDX #9 ; ENTER SEARCH KEY...
1910: AACE 20 BC B9 JSR MESSAG
1920: AAD1 20 60 B6 JSR RESFLG ; CLEAR OLD FLAGS
1930: AAD4 A9 00 LDA #0
1940: AAD6 85 FF STA MSGFL
1950: AAD8 85 77 STA TEMP3 ; NOTHING DISPLAYED
1960: AADA 20 5E B2 JSR ENTA1 ; GO ENTER DATA
1970: AADD 90 11 BCC SERCH1 ; TEST FOR <F7>
1980: AADF 20 0B B6 JSR CLEARB
1990: AAE2 A5 31 LDA PBGREC ; -PCORREC- TO BEGIN
2000: AAE4 A4 32 LDY PBGREC+1
2010: AAE6 85 33 STA PCORREC
2020: AAE8 84 34 STY PCORREC+1
2030: AAEA A9 00 LDA #0
2040: AAEC 85 77 STA TEMP3 ; NOTHING DISPLAYED
2050: AAEE 18 CLC ; FLAG-NO ERROR
2060: AAEF 60 RTS ; GO BACK TO MENU

;
2080: AAF0 20 0B B6 SERCH1 JSR CLEARB
2090: AAF3 A2 17 LDX #23
2100: AAF5 A0 27 LDY #39
2110: AAF7 18 CLC
2120: AAF8 20 F0 FF JSR PLOT ; PUT CRSR AT BOTTOM
2130: AAFB AD 00 CF LDA MAXFLD ; GET NUM FIELDS
2140: AAFE 85 82 STA CFIELD
2150: AB00 C6 82 SERCH2 DEC CFIELD
2160: AB02 10 03 BPL SERC21
2170: AB04 4C 26 AC JMP SERDON
2180: AB07 A2 81 SERC21 LDX #81
2190: AB09 20 7B B3 JSR FLDBWD ; GO PREV FIND FIELD
2200: AB0C A2 00 LDX #0
2210: AB0E 86 0E STX TYPE ; NO TYPE
2220: AB10 86 79 STX RANGEF ; NO RANGE
2230: AB12 A4 D3 LDY COLNUM ; GET COLUMN OF FIELD
2240: AB14 88 DEY ; FUDGE FOR ENTRY
2250: AB15 C8 SERCH3 INY
2260: AB16 C0 28 CPY #40 ; TEST FOR EOL
2270: AB18 F0 2E BEQ SERNXT
2280: AB1A B1 D1 LDA (SCNLIN),Y
2290: AB1C 10 2A BPL SERNXT ; NO REV-END OF FIELD
2300: AB1E C9 A0 CMP #160
2310: AB20 F0 26 BEQ SERNXT
2320: AB22 29 3F AND #3F ; MASK OFF REVERSE
2330: AB24 20 20 B8 JSR CONASC ; CONVERT TO ASCII
2340: AB27 C9 5E CMP #"T" ; SORT RECORDS
2350: AB29 F0 14 BEQ SERCH5
2360: AB2B C9 5C CMP #"E" ; FULL RECORD SEARCH
2370: AB2D F0 10 BEQ SERCH5
2380: AB2F C9 5F CMP #"<" ; RANGE SEARCH
2390: AB31 F0 0C BEQ SERCH5
2400: AB33 9D 00 02 STA INPBUF,X
2410: AB36 A5 0E LDA TYPE ; TEST FOR TYPE SET
2420: AB38 F0 02 BEQ SERCH4 ; NO-NO SET RANGE BIT
2430: AB3A E6 79 INC RANGEF ; YES-SET RANGE FLAG
2440: AB3C E8 SERCH4 INX
2450: AB3D D0 D6 BNE SERCH3 ; ALWAYS

;
2470: AB3F 85 0E SERCH5 STA TYPE ; SAVE TYPE
2480: AB41 A9 00 LDA #0 ; PUT ZERO IN BUFFER
2490: AB43 9D 00 02 STA INPBUF,X
2500: AB46 F0 F4 BEQ SERCH4 ; ALWAYS

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2520: AB48 86 75      SERNXT      STX  TEMP      ;SAVE LENGTH
2530: AB4A A5 0E      LDA  TYPE      ;TEST FOR ANY TYPE
2540: AB4C C9 5E      CMP  #"T"      ;SORT
2550: AB4E F0 04      BEQ  SERNX1     ;YES-IGNORE BUFFER
2560: AB50 E0 00      CPX  #0        ;EMPTY BUFFER
2570: AB52 F0 AC      BEQ  SERCH2     ;GO TO NEXT FIELD
2580: AB54 A9 00      SERNX1      LDA  #0
2590: AB56 9D 00 02   STA  INPBUF,X   ;PUT ZERO AT END
2600: AB59 E6 FF      INC  MSGFL     ;DID DO SOMETHING FLG
2610: AB5B 85 15      STA  INTGER+1  ;ZERO OFFSET
2620: AB5D 85 14      STA  INTGER
2630: AB5F A5 31      LDA  PBGREC     ;SET CURRENT TO BEGIN
2640: AB61 A4 32      LDY  PBGREC+1
2650: AB63 85 33      STA  PCRREC
2660: AB65 84 34      STY  PCRREC+1

;
2680: AB67 A5 0E      LDA  TYPE
2690: AB69 C9 5C      CMP  #"E"      ;FULL RECORD
2700: AB6B F0 4A      BEQ  SERNX4
2710: AB6D A2 FF      LDX  ##FF
2720: AB6F E8          SERNX2      INX
2730: AB70 BD 07 CF   LDA  FLDTBL,X   ;GET FIELD LENGTH
2740: AB73 29 3F      AND  ##3F      ;MASK OFF TYPE
2750: AB75 E4 82      CPX  CFIELD     ;TO CUR FIELD YET
2760: AB77 F0 0B      BEQ  SERNX3     ;YES-GO ON
2770: AB79 18          CLC
2780: AB7A 65 14      ADC  INTGER     ;ADD TO OFFSET
2790: AB7C 85 14      STA  INTGER
2800: AB7E 90 EF      BCC  SERNX2
2810: AB80 E6 15      INC  INTGER+1
2820: AB82 D0 EB      BNE  SERNX2     ;ALWAYS

;
2840: AB84 85 76      SERNX3      STA  TEMP2     ;SAVE FLD LENGTH
2850: AB86 A5 0E      LDA  TYPE
2860: AB88 C9 5E      CMP  #"T"      ;CHECK FOR SORT
2870: AB8A D0 1E      BNE  SERN33
2880: AB8C A5 D6      LDA  LINNUM     ;SAVE LINE NUMBER
2890: AB8E 8D C0 CF   STA  TMPARA
2900: AB91 A5 D3      LDA  COLNUM     ;SAVE COLUMN NUMBER
2910: AB93 8D C1 CF   STA  TMPARA+1
2920: AB96 20 C1 AC      JSR  SORT
2930: AB99 AC C1 CF      LDY  TMPARA+1   ;GET COLUMN NUMBER
2940: AB9C AE C0 CF      LDX  TMPARA     ;GET LINE NUMBER
2950: AB9F 18          CLC          ;GO POSITION CRSR
2960: ABA0 20 F0 FF   JSR  PLOT
2970: ABA3 A5 75      LDA  TEMP      ;CHECK FOR SEARCH
2980: ABA5 D0 03      BNE  SERN33     ;YES-DO SEARCH
2990: ABA7 4C 00 AB   JMP  SERCH2     ;NO-DO NEXT FIELD

;
3010: ABAA A5 79      SERN33      LDA  RANGEF     ;TEST FOR RANGE
3020: ABAC F0 02      BEQ  SERN11     ;NO-NO DIVIDE IT
3030: ABAE 46 75      LSR  TEMP      ;DIVIDE BY 2
3040: ABB0 38          SERN11      SEC
3050: ABB1 A5 76      LDA  TEMP2     ;GET FIELD LENGTH
3060: ABB3 E5 75      SBC  TEMP      ;MINUS SEARCH LENGTH
3070: ABB5 85 75      STA  TEMP      ;SAVE MATCH LENGTH

;
3090: ABB7 38          SERNX4      SEC          ;OFFSET+1-EXTRA BYTE
3100: ABB8 A5 33      LDA  PCRREC     ;ADD OFFSET TO
3110: ABBA 65 14      ADC  INTGER     ;CURRENT RECORD
3120: ABBC 85 22      STA  POINTA
3130: ABBE A5 34      LDA  PCRREC+1
3140: ABC0 65 15      ADC  INTGER+1
3150: ABC2 85 23      STA  POINTA+1
3160: ABC4 A6 75      LDX  TEMP      ;GET MATCH LENGTH
3170: ABC6 E8          INX          ;MUST DO ONE PASS

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3180: ABC7 B6 83 STX CFLEN ;RESTORE FIELD LEN
3190: ABC9 A0 00 SERNX5 LDY #0
3200: ABCB B1 22 LDA (POINTA),Y
3210: ABCD F0 45 BEQ NXTREC ;'0 IS END OF RECORD
3220: ABCF A5 0E LDA TYPE ;GET TYPE OF SEARCH
3230: ABD1 C9 5C CMP #"±" ;FULL RECORD
3240: ABD3 F0 04 BEQ SERNX6
3250: ABD5 C6 83 DEC CFLEN ;DEC FIELD LEN CNTR
3260: ABD7 30 3B BMI NXTREC ;ALL DONE
3270: ABD9 A2 FF SERNX6 LDX #$FF
3280: ABDB A0 FF LDY #$FF
3290: ABDD E8 SERNX7 INX
3300: ABDE C8 INY
3310: ABDF BD 00 02 LDA INPBUF,X
3320: ABE2 F0 38 BEQ FOUND ;END OF SEARCH DATA
3330: ABE4 C9 3F CMP #"?" ;WILDCARD
3340: ABE6 F0 F5 BEQ SERNX7
3350: ABE8 D1 22 CMP (POINTA),Y
3360: ABEA F0 F1 BEQ SERNX7
3370: ABEC B0 1D BCS SERNXA ;LESS THAN MATCH
3380: ABEE A5 79 LDA RANGEF
3390: ABF0 F0 19 BEQ SERNXA ;NOT RANGE SEARCH
3400: ABF2 E8 SERNX8 INX
3410: ABF3 BD 00 02 LDA INPBUF,X ;TEST TOP OF RANGE
3420: ABF6 D0 FA BNE SERNX8 ;FIND END OF PART 1
3430: ABF8 A0 FF LDY #$FF
3440: ABFA E8 SERNX9 INX
3450: ABFB C8 INY
3460: ABFC BD 00 02 LDA INPBUF,X
3470: ABFF F0 1B BEQ FOUND ;END OF SEARCH DATA
3480: AC01 C9 3F CMP #"?" ;WILDCARD
3490: AC03 F0 F5 BEQ SERNX9
3500: AC05 D1 22 CMP (POINTA),Y
3510: AC07 F0 F1 BEQ SERNX9 ;MATCH-TRY NEXT CHAR
3520: AC09 B0 11 BCS FOUND ;IN RANGE-MATCH OK
;
3540: AC0B 20 DC B8 SERNXA JSR INCPTA
3550: AC0E A5 0E LDA TYPE
3560: AC10 C9 5E CMP #"T" ;IS IT F05 DEPENDENT
3570: AC12 90 B5 BCC SERNX5 ;NO-TEST ALL OF FIELD
;
3590: AC14 A0 00 NXTREC LDY #0 ;NO MATCH-SET FLAG
3600: AC16 B1 33 LDA (PCRREC),Y
3610: AC18 09 80 ORA #$80
3620: AC1A 91 33 STA (PCRREC),Y
;
3640: AC1C 20 F0 B8 FOUND JSR ADDLEN
3650: AC1F 90 96 BCC SERNX4 ;GOTO NEXT RECORD
3660: AC21 E6 77 INC TEMP3 ;DID DO SEARCH
3670: AC23 4C 00 AB JMP SERCH2 ;GOTO NEXT FIELD
;
3690: AC26 A5 31 SERDON LDA FBGREC
3700: AC28 A4 32 LDY FBGREC+1
3710: AC2A 85 33 STA PCRREC
3720: AC2C 84 34 STY PCRREC+1
3730: AC2E 85 14 STA INTGER ;SET LAST TO BEGIN
3740: AC30 84 15 STY INTGER+1
3750: AC32 20 1C B6 JSR CLRFLD ;CLEAR FIELDS
3760: AC35 A5 18 LDA PRTFLG ;IS IT FORM PRINT
3770: AC37 D0 0E BNE SERDN1 ;YES-DO EVERYTHING
3780: AC39 A5 FF LDA MSGFL ;WAS SOMETHING DONE
3790: AC3B D0 02 BNE SERDNO ;YES
3800: AC3D 38 SEC ;NO-SET ERROR FLAG
3810: AC3E 60 RTS
;
3830: AC3F A5 77 SERDNO LDA TEMP3

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3840: AC41 F0 70 BEQ SERDN3 ;WAS A SEARCH DONE
3850: AC43 A9 00 LDA #0
3860: AC45 85 77 STA TEMP3 ;NOTHING DISPLAYED
;
3880: AC47 A0 00 SERDN1 LDY #0 ;YES-DISPLAY IT
3890: AC49 B1 33 LDA (PCRREC),Y
3900: AC4B 30 5C BMI SERDN2 ;BIT '7 SET-NO MATCH
3910: AC4D A2 01 LDX #1
3920: AC4F 86 77 STX TEMP3 ;SOMETHING DISPLAYED
3930: AC51 20 06 B1 JSR DISREC ;DISPLAY RECORD
3940: AC54 A5 33 LDA PCRREC ;SAVE LAST DISPLAY
3950: AC56 A4 34 LDY PCRREC+1
3960: AC58 85 14 STA INTGER
3970: AC5A 84 15 STY INTGER+1
;
3990: AC5C A5 18 LDA PRTFLG ;TEST FOR PRT MODE
4000: AC5E F0 0B BEQ SERDND
4010: AC60 20 41 A7 JSR PRTREC ;YES-PRINT RECORD
4020: AC63 90 44 BCC SERDN2 ;CONT
4030: AC65 E0 FF CPX #$FF ;STOP KEY EXIT
4040: AC67 F0 4A BEQ SERDN3
4050: AC69 D0 4D BNE SERDN5 ;EXIT-ALWAYS
;
4070: AC6B A2 0A SERDND LDX #10 ;'PRESS <F1>...'
4080: AC6D 20 BC B9 JSR MESSAG
4090: AC70 20 A7 B5 SERLOP JSR GETCHR
4100: AC73 48 PHA
4110: AC74 20 0B B6 JSR CLEARB
4120: AC77 68 PLA
4130: AC78 C9 85 CMP #FF1 ;<F1>
4140: AC7A F0 2D BEQ SERDN2 ;GO TO NEXT RECORD
4150: AC7C C9 43 CMP #"C" ;CHANGE
4160: AC7E D0 06 BNE SERN21
4170: AC80 20 3A AA JSR CHANGR ;GO CHANGE RECORD
4180: AC83 4C 6B AC JMP SERDND ;GET NEXT CHARACTER
4190: AC86 C9 44 SERN21 CMP #"D" ;DELETE
4200: AC88 D0 15 BNE SERN22
4210: AC8A 20 52 B0 JSR DELETE
4220: AC8D 20 1C B6 JSR CLRFLD ;CLEAR FIELDS
4230: AC90 A5 31 LDA PBGREC ;SET LAST TO BEGIN
4240: AC92 A4 32 LDY PBGREC+1
4250: AC94 85 14 STA INTGER
4260: AC96 84 15 STY INTGER+1
4270: AC98 A9 00 LDA #0
4280: AC9A 85 77 STA TEMP3 ;NOTHING DISPLAYED
4290: AC9C 4C A9 AC JMP SERDN2 ;GO TO NEXT RECORD
4300: AC9F C9 50 SERN22 CMP #"P" ;SCREEN PRINT
4310: ACA1 D0 12 BNE SERDN4 ;GO BACK TO RETREIVE
4320: ACA3 20 5B AA JSR PRNT ;PRINT RECORD
4330: ACA6 4C 6B AC JMP SERDND ;GET NEXT CHARACTER
;
4350: ACA9 20 F0 B8 SERDN2 JSR ADDLEN
4360: ACAC 90 99 BCC SERDN1 ;GO TEST NEXT RECORD
4370: ACAE A2 03 LDX #3 ;'END OF FILE...'
4380: ACB0 20 BC B9 JSR MESSAG
4390: ACB3 A9 20 SERDN3 LDA #" " ;DUMMY CHAR
4400: ACB5 85 75 SERDN4 STA TEMP ;SAVE CHARACTER
4410: ACB7 18 CLC ;NO ERROR
4420: ACB8 A5 14 SERDN5 LDA INTGER
4430: ACBA A4 15 LDY INTGER+1
4440: ACBC 85 33 STA PCRREC
4450: ACBE 84 34 STY PCRREC+1
4460: ACC0 60 RTS ;BK TO RETREIVE
;
; ROUTINE TO SORT RECORDS BY
; FIELD DEFINED IN SEARCH ROUTINE

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4510: ACC1 A2 1E      SORT      LDX #30      ; SORTING...
4520: ACC3 86 17      STX SWPFLG    ; SET SWAP FLAG
4530: ACC5 20 BC B9   JSR MESSAG
4540: ACC8 A5 2D      LDA PLSREC    ; SET SORTEND TO FILEND
4550: ACCA A4 2E      LDY PLSREC+1
4560: ACCC 85 20      STA BUFPTR
4570: ACCE 84 21      STY BUFPTR+1

```

```

4590: ACD0 A5 17      SORT0     LDA SWPFLG    ; ANY SWAPS DONE
4600: ACD2 F0 53      BEQ SORTDN
4610: ACD4 A5 31      LDA PBGREC    ; SET PASS TO BEGIN
4620: ACD6 A4 32      LDY PBGREC+1
4630: ACD8 85 33      STA PCRREC
4640: ACDA 84 34      STY PCRREC+1
4650: ACDC A9 00      LDA #0        ; CLEAR SWAP FLAG
4660: ACDE 85 17      STA SWPFLG
4670: ACE0 38          SORT1     SEC          ; PLUS ONE
4680: ACE1 A5 33      LDA PCRREC    ; ADD OFFSET TO PTA
4690: ACE3 65 14      ADC INTGER
4700: ACE5 85 22      STA POINTA
4710: ACE7 A5 34      LDA PCRREC+1
4720: ACE9 65 15      ADC INTGER+1
4730: ACEB 85 23      STA POINTA+1
4740: ACED 18          CLC
4750: ACEE A5 33      LDA PCRREC    ; SET POINT B BEGIN REC
4760: ACF0 6D 01 CF   ADC RECLEN
4770: ACF3 85 24      STA POINTB
4780: ACF5 A5 34      LDA PCRREC+1
4790: ACF7 6D 02 CF   ADC RECLEN+1
4800: ACFA 85 25      STA POINTB+1

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4820: ACFC A5 25      LDA POINTB+1  ; TEST FOR END OF PASS
4830: ACFE C5 21      CMP BUFPTR+1
4840: AD00 90 31      BCC SORT5
4850: AD02 D0 06      BNE SORT2
4860: AD04 A5 24      LDA POINTB    ; TEST FOR END OF PASS
4870: AD06 C5 20      CMP BUFPTR
4880: AD08 90 29      BCC SORT5

```

```

4900: AD0A 38          SORT2     SEC          ; MOVE NEW END BACK ONE
4910: AD0B A5 20      LDA BUFPTR
4920: AD0D ED 01 CF   SBC RECLEN
4930: AD10 85 20      STA BUFPTR
4940: AD12 A5 21      LDA BUFPTR+1
4950: AD14 ED 02 CF   SBC RECLEN+1
4960: AD17 85 21      STA BUFPTR+1
4970: AD19 A5 32      LDA PBGREC+1  ; TEST FOR AT BEGINING
4980: AD1B C5 21      CMP BUFPTR+1
4990: AD1D 90 B1      BCC SORT0
5000: AD1F D0 06      BNE SORTDN
5010: AD21 A5 31      LDA PBGREC
5020: AD23 C5 20      CMP BUFPTR
5030: AD25 90 A9      BCC SORT0

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5050: AD27 20 0B B6   SORTDN     JSR CLEARB    ; SORT DONE
5060: AD2A A5 31      LDA PBGREC    ; SET CURRENT BACK TO
5070: AD2C A4 32      LDY PBGREC+1  ; BEGINNING OF FILE
5080: AD2E 85 33      STA PCRREC
5090: AD30 84 34      STY PCRREC+1
5100: AD32 60          RTS

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5120: AD33 38          SORT5     SEC          ; PLUS ONE
5130: AD34 A5 24      LDA POINTB    ; ADD OFFSET TO PTB
5140: AD36 65 14      ADC INTGER
5150: AD38 85 24      STA POINTB

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5160:  AD3A A5 25          LDA  POINTB+1
5170:  AD3C 65 15          ADC  INTGER+1
5180:  AD3E 85 25          STA  POINTB+1

;
5200:  AD40 A6 76          SORT6  LDX  TEMP2      ;GET FIELD LEN
5210:  AD42 A0 FF          LDY  ##FF
5220:  AD44 C8          SORT7  INY
5230:  AD45 CA          DEX
5240:  AD46 30 18          BMI  SORTNX      ;LENGTH END-1
5250:  AD48 B1 22          LDA  (POINTA),Y
5260:  AD4A D1 24          CMP  (POINTB),Y
5270:  AD4C F0 F6          BEQ  SORT7
5280:  AD4E 90 10          BCC  SORTNX
5290:  AD50 E6 17          INC  SWPFLG      ;SET SWAP FLAG
5300:  AD52 20 72 AD      JSR  SWAPRC      ;GO SWAP RECORDS

;
5320:  AD55 A5 91          LDA  STOPKY      ;TEST RUN/STOP
5330:  AD57 C9 7F          CMP  ##7F
5340:  AD59 D0 05          BNE  SORTNX      ;NO-CONTINUE
5350:  AD5B 0A          ASL           ;MAKE BIT '7 HIGH
5360:  AD5C 85 82          STA  CFIELD      ;SET CFIELD FOR EXIT
5370:  AD5E D0 C7          BNE  SORTDN      ;ALWAYS-EXIT-SORT&SRCH

;
5390:  AD60 18          SORTNX  CLC           ;MOVE PTA & B
5400:  AD61 A5 33          LDA  PCRREC      ;BACK TO BEGIN OF REC
5410:  AD63 6D 01 CF      ADC  RECLEN
5420:  AD66 85 33          STA  PCRREC
5430:  AD68 A5 34          LDA  PCRREC+1
5440:  AD6A 6D 02 CF      ADC  RECLEN+1
5450:  AD6D 85 34          STA  PCRREC+1
5460:  AD6F 4C E0 AC      JMP  SORT1

;
; ROUTINE TO SWAP TWO RECORDS
;
5500:  AD72 18          SWAPRC  CLC
5510:  AD73 A5 33          LDA  PCRREC
5520:  AD75 85 22          STA  POINTA
5530:  AD77 6D 01 CF      ADC  RECLEN
5540:  AD7A 85 24          STA  POINTB
5550:  AD7C A5 34          LDA  PCRREC+1
5560:  AD7E 85 23          STA  POINTA+1
5570:  AD80 6D 02 CF      ADC  RECLEN+1
5580:  AD83 85 25          STA  POINTB+1
5590:  AD85 A0 00          LDY  #0
5600:  AD87 B1 22          SWAP1  LDA  (POINTA),Y
5610:  AD89 AA          TAX
5620:  AD8A B1 24          LDA  (POINTB),Y
5630:  AD8C 91 22          STA  (POINTA),Y
5640:  AD8E 8A          TXA
5650:  AD8F 91 24          STA  (POINTB),Y
5660:  AD91 20 DC B8      JSR  INCPTA      ;GO TO NEXT BYTE
5670:  AD94 20 D5 B8      JSR  INCPTB
5680:  AD97 B1 22          LDA  (POINTA),Y
5690:  AD99 29 7F          AND  ##7F      ;MASK BIT '7
5700:  AD9B D0 EA          BNE  SWAP1      ;ZERO IS END
5710:  AD9D 60          SWAPDN  RTS

;
5730:  AD9E          .FILE8,"FILER.PAL PT5"
; MICROFILER PT5
;
; -----
; NUMERIC DATA FORMAT
; -----
; FIRST BYTE IS SIGN
; -NONE ZERO IS NEGATIVE
; NEXT 5 BYTES ARE MANTISSA IN BCD

```

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; -IN RIGHT TO LEFT ORDER
; NEXT 2 BYTES ARE DECIMAL POINTS
; -SAME FORMAT
;
; BOTH ACCUM1 AND ACCUM2 ARE USED
; THE SAME - ACCUM2 IS THE SUM
;
; ROUTINE TO SUM OR AVERAGE ALL
; NUMERIC FIELDS
;

```

```

290:  AD9E 85 73      SUMMRY  STA  TMPEND      ;SAVE TYPE
300:  ADA0 20 1C B6      JSR  CLRFLD
310:  ADA3 A2 00      LDX  #0
320:  ADA5 86 24      STX  POINTB
330:  ADA7 86 25      STX  POINTB+1
340:  ADA9 BD 07 CF SUMRY1 LDA  FLDTBL,X
350:  ADAC 85 83      STA  CFDLEN
360:  ADAE 10 1B      BPL  SUMRY3
370:  ADB0 29 40      AND  #$40          ;TEST FOR NUMERIC
380:  ADB2 D0 17      BNE  SUMRY3
390:  ADB4 86 76      STX  TEMP2          ;SAVE 'X
400:  ADB6 20 75 AE      JSR  SUMMIT
410:  ADB9 90 25      BCC  SUMMDN          ;OVER FLOW ERROR
420:  ADBB A5 73      LDA  TMPEND          ;GET TYPE
430:  ADBD C9 41      CMP  #"A"          ;WAS IT AVERAGE
440:  ADBF D0 05      BNE  SUMRY2          ;NO
450:  ADC1 20 E1 AD      JSR  AVERAG          ;YES-DO AVERAGE
460:  ADC4 90 1A      BCC  SUMMDN          ;OVER FLOW ERROR
470:  ADC6 20 CF AF SUMRY2 JSR  SUMPRT
480:  ADC9 A6 76      LDX  TEMP2          ;RESTORE 'X
490:  ADCB A5 83      SUMRY3 LDA  CFDLEN      ;GET LENGTH
500:  ADCD 18          CLC
510:  ADCE 29 3F      AND  #%00111111      ;MASK OFF TYPE
520:  ADD0 65 24      ADC  POINTB          ;ADD LENGTH TO POINTER
530:  ADD2 85 24      STA  POINTB
540:  ADD4 A9 00      LDA  #0
550:  ADD6 65 25      ADC  POINTB+1
560:  ADD8 85 25      STA  POINTB+1
570:  ADDA E8          INX
580:  ADDB EC 00 CF      CPX  MAXFLD
590:  ADDE D0 C9      BNE  SUMRY1
600:  ADE0 60          SUMMDN RTS

;
620:  ADE1 A2 07      AVERAG LDX  #7
630:  ADE3 A9 00      LDA  #0
640:  ADE5 95 61      AVR1  STA  ACCUM1,X      ;CLEAR COUNTER
650:  ADE7 CA          DEX
660:  ADE8 10 FB      BPL  AVR1
670:  ADEA A9 00      LDA  #0
680:  ADEC 85 77      STA  TEMP3          ;NDIGIT
690:  ADEE A9 0F      LDA  #15
700:  ADF0 85 75      STA  TEMP          ;COUNT
710:  ADF2 78          SEI          ;NO INTERRUPTS
720:  ADF3 F8          SED          ;SET DECIMAL
730:  ADF4 A9 69      AVSUB1 LDA  #<ACCUM2
740:  ADF6 A0 00      LDY  #>ACCUM2
750:  ADF8 20 57 AE      JSR  RLARY
760:  ADFB C6 75      DEC  TEMP
770:  ADFD F0 3D      BEQ  AVSUBD          ;DONE ON ZERO
780:  ADFF A9 61      LDA  #<ACCUM1
790:  AE01 A0 00      LDY  #>ACCUM1
800:  AE03 20 57 AE      JSR  RLARY
810:  AE06 A9 00      LDA  #0
820:  AE08 85 77      STA  TEMP3
830:  AE0A A2 07      AVSUB2 LDX  #7          ;DO TEST SUBTRACT

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840:    AE0C 38          SEC
850:    AE0D B5 61      LDA  ACCUM1,X
860:    AE0F E5 15      SBC  INTGER+1
870:    AE11 9D 00 02   STA  INPBUF,X
880:    AE14 CA          DEX
890:    AE15 B5 61      LDA  ACCUM1,X
900:    AE17 E5 14      SBC  INTGER
910:    AE19 9D 00 02   STA  INPBUF,X
920:    AE1C CA          DEX
930:    AE1D B5 61      LDA  ACCUM1,X
940:    AE1F E9 00      SBC  #0
950:    AE21 9D 00 02   STA  INPBUF,X
960:    AE24 CA          DEX
970:    AE25 10 F6      BFL  AVSUB3
980:    AE27 90 CB      BCC  AVSUB1
990:    AE29 A5 77      LDA  TEMP3
1000:   AE2B 18          CLC
1010:   AE2C 69 10      ADC  ##10      ; INC NDIGIT
1020:   AE2E 85 77      STA  TEMP3
1030:   AE30 A2 07      LDX  #7      ; SWAP TEST SUB TO ACCUM
1040:   AE32 BD 00 02   AVSUB4 LDA  INPBUF,X
1050:   AE35 95 61      STA  ACCUM1,X
1060:   AE37 CA          DEX
1070:   AE38 10 F8      BFL  AVSUB4
1080:   AE3A 30 CE      BMI  AVSUB2      ; ALWAYS

;
1100:   AE3C 18          AVSUBD CLC
1110:   AE3D A2 07      LDX  #7      ; ADD .005 TO RND OFF
1120:   AE3F BD 4F AE   AVSBD1 LDA  RNDOFF,X
1130:   AE42 95 61      STA  ACCUM1,X
1140:   AE44 CA          DEX
1150:   AE45 10 F8      BFL  AVSBD1
1160:   AE47 20 53 AF   JSR  SUMADD
1170:   AE4A A9 00      LDA  #0
1180:   AE4C 85 70      STA  ACCUM2+7 ; DUMP LAST TWO PLACES
1190:   AE4E 60          RTS

;
1210:   AE4F 00 00 00 00 RNDOFF .BYT 0,0,0,0,0,0,0,0,$50

;
1230:   AE57 85 20      RLARY STA  BUFPTR ; SHIFT ACCUM
1240:   AE59 84 21      STY  BUFPTR+1
1250:   AE5B A0 07      LDY  #7
1260:   AE5D B1 20      RLSHFT LDA  (BUFPTR),Y
1270:   AE5F 48          PHA
1280:   AE60 29 0F      AND  ##0F
1290:   AE62 06 77      ASL  TEMP3      ; MOVE TEMP3 INTO SPACE
1300:   AE64 05 77      ORA  TEMP3
1310:   AE66 2A          ROL
1320:   AE67 2A          ROL
1330:   AE68 2A          ROL
1340:   AE69 2A          ROL
1350:   AE6A 91 20      STA  (BUFPTR),Y
1360:   AE6C 68          PLA
1370:   AE6D 29 F0      AND  ##F0
1380:   AE6F 85 77      STA  TEMP3
1390:   AE71 88          DEY
1400:   AE72 D0 E9      BNE  RLSHFT
1410:   AE74 60          RTS

;
1430:   AE75 A5 83      SUMMIT LDA  CFDLEN ; GET LENGTH
1440:   AE77 29 3F      AND  #%00111111
1450:   AE79 85 83      STA  CFDLEN ; SAVE LENGTH
1460:   AE7B A9 00      LDA  #0
1470:   AE7D 85 14      STA  INTGER
1480:   AE7F 85 15      STA  INTGER+1
1490:   AE81 A2 07      LDX  #7

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1500: AE83 95 69      SUMT0      STA  ACCUM2,X      ;CLEAR SUM
1510: AE85 CA          DEX
1520: AE86 10 FB      BPL  SUMT0
1530: AE88 A5 31      LDA  PBGREC
1540: AE8A A4 32      LDY  PBGREC+1
1550: AE8C 85 33      SUMLOP    STA  PCRREC
1560: AE8E 84 34      STY  PCRREC+1
1570: AE90 38          SEC                      ;ADD ONE FIRST BYTE
1580: AE91 65 24      ADC  POINTB
1590: AE93 85 22      STA  POINTA
1600: AE95 98          TYA
1610: AE96 65 25      ADC  POINTB+1
1620: AE98 85 23      STA  POINTA+1
1630: AE9A A9 00      LDA  #0
1640: AE9C A2 07      LDX  #7
1650: AE9E 95 61      SUMT1      STA  ACCUM1,X      ;CLR ACCUM1
1660: AEA0 CA          DEX
1670: AEA1 10 FB      BPL  SUMT1
1680: AEA3 A2 06      LDX  #6                      ;4 DIGITS-DEC PTS
1690: AEA5 A4 83      LDY  CFDLEN                    ;GET LENGTH
1700: AEA7 88          SUMT2      DEY
1710: AEA8 30 4D      BMI  SUMT5
1720: AEA9 B1 22      LDA  (POINTA),Y      ;SCAN FOR '.
1730: AEAC C9 2E      CMP  #". "
1740: AEAE D0 F7      BNE  SUMT2
1750: AEB0 98          TYA
1760: AEB1 48          PHA                      ;SAVE '. LOCATION
1770: AEB2 C8          SUMT3      INY
1780: AEB3 C4 83      CPY  CFDLEN
1790: AEB5 F0 39      BEQ  SUMT4
1800: AEB7 B1 22      LDA  (POINTA),Y
1810: AEB9 0A          ASL
1820: AEB9 0A          ASL
1830: AEBB 0A          ASL
1840: AEBB 0A          ASL
1850: AEBD 95 61      STA  ACCUM1,X
1860: AEBF C8          INY
1870: AEC0 C4 83      CPY  CFDLEN
1880: AEC2 F0 2C      BEQ  SUMT4
1890: AEC4 B1 22      LDA  (POINTA),Y
1900: AEC6 29 0F      AND  #$0F
1910: AEC8 15 61      ORA  ACCUM1,X
1920: AECA 95 61      STA  ACCUM1,X
1930: AECC E8          INX
1940: AECD E0 08      CPX  #8
1950: AECF D0 E1      BNE  SUMT3
1960: AED1 C8          INY                      ;ROUND IN 5TH DIGIT
1970: AED2 C4 83      CPY  CFDLEN                    ;END OF FIELD YET
1980: AED4 F0 1A      BEQ  SUMT4
1990: AED6 B1 22      LDA  (POINTA),Y
2000: AED8 29 0F      AND  #$0F
2010: AEDA C9 05      CMP  #5                      ;<5 DONT ROUND IN
2020: AEDC 90 12      BCC  SUMT4
2030: AEDE 18          CLC
2040: AEDF 78          SEI                      ;NO INTERRUPTS
2050: AEE0 F8          SED
2060: AEE1 A2 07      LDX  #7
2070: AEE3 A9 01      LDA  #1                      ;ADD ONE IN AND
2080: AEE5 75 61      SUMT31     ADC  ACCUM1,X      ;CARRY IT OVER
2090: AEE7 95 61      STA  ACCUM1,X
2100: AEE9 A9 00      LDA  #0
2110: AEEB CA          DEX
2120: AEEC D0 F7      BNE  SUMT31                    ;CARRY FULL 7 DIGITS
2130: AEEE D8          CLD
2140: AEEF 58          CLI

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2160:	AEF0	68	SUMT4	PLA		
2170:	AEF1	A8		TAY		
2180:	AEF2	88		DEY		
2190:	AEF3	30 43		BMI	SUMT12	
2200:	AEF5	10 0B		BPL	SUMT9	; ALWAYS
;						
2220:	AEF7	A4 83	SUMT5	LDY	CFDLEN	
2230:	AEF9	88	SUMT6	DEY		
2240:	AEFA	30 3C		BMI	SUMT12	
2250:	AEFC	B1 22		LDA	(POINTA),Y	; DUMP SPACES
2260:	AEFE	C9 20		CMP	#" "	
2270:	AF00	F0 F7		BEG	SUMT6	
2280:	AF02	A2 06	SUMT9	LDX	#6	
2290:	AF04	CA	SUMT10	DEX		
2300:	AF05	F0 31		BEG	SUMT12	; MOVE DIGIT TO ACCUM
2310:	AF07	B1 22		LDA	(POINTA),Y	
2320:	AF09	C9 2D		CMP	#"-"	; TEST FOR NEG
2330:	AF0B	F0 1A		BEG	SUMT11	
2340:	AF0D	29 0F		AND	#\$0F	
2350:	AF0F	95 61		STA	ACCUM1,X	
2360:	AF11	88		DEY		
2370:	AF12	30 24		BMI	SUMT12	
2380:	AF14	B1 22		LDA	(POINTA),Y	
2390:	AF16	C9 2D		CMP	#"-"	
2400:	AF18	F0 0D		BEG	SUMT11	
2410:	AF1A	0A		ASL		
2420:	AF1B	0A		ASL		
2430:	AF1C	0A		ASL		
2440:	AF1D	0A		ASL		
2450:	AF1E	15 61		ORA	ACCUM1,X	
2460:	AF20	95 61		STA	ACCUM1,X	
2470:	AF22	88		DEY		
2480:	AF23	30 13		BMI	SUMT12	; DONE
2490:	AF25	10 DD		BPL	SUMT10	; ALWAYS
;						
2510:	AF27	E6 61	SUMT11	INC	ACCUM1	; SET SIGN NEG
2520:	AF29	A2 07		LDX	#7	; TEST FOR NEG ZERO
2530:	AF2B	A9 00		LDA	#0	
2540:	AF2D	15 61	SUMTST	ORA	ACCUM1,X	
2550:	AF2F	CA		DEX		
2560:	AF30	D0 FB		BNE	SUMTST	
2570:	AF32	C9 00		CMP	#0	
2580:	AF34	D0 02		BNE	SUMT12	
2590:	AF36	85 61		STA	ACCUM1	; SET SIGN POS
;						
2610:	AF38	A5 69	SUMT12	LDA	ACCUM2	
2620:	AF3A	29 01		AND	#1	
2630:	AF3C	C5 61		CMP	ACCUM1	; TEST LIKE SIGNS
2640:	AF3E	F0 13		BEG	SUMADD	
2650:	AF40	A2 01		LDX	#1	; SET FLAG FOR DID
2660:	AF42	86 61		STX	ACCUM1	; DO COMPLEMENT
2670:	AF44	CA		DEX		
2680:	AF45	86 69		STX	ACCUM2	; CLEAR SIGN ACCUM2
2690:	AF47	C9 00		CMP	#0	
2700:	AF49	F0 05		BEG	SUMT13	
2710:	AF4B	20 AA AF		JSR	COMPA2	
2720:	AF4E	F0 03		BEG	SUMADD	; ALWAYS
;						
2740:	AF50	20 A7 AF	SUMT13	JSR	COMPA1	
;						
2760:	AF53	A2 07	SUMADD	LDX	#7	; ADD TO SUM
2770:	AF55	78		SEI		; NO INTERRUPTS
2780:	AF56	F8		SED		
2790:	AF57	18		CLC		
2800:	AF58	B5 61	SUMA1	LDA	ACCUM1,X	
2810:	AF5A	75 69		ADC	ACCUM2,X	

2820:	AF5C	95	69		STA	ACCUM2,X	
2830:	AF5E	CA			DEX		
2840:	AF5F	D0	F7		BNE	SUMA1	
2850:	AF61	B0	0B		BCS	SUMOV	; 'C SET-NOT NEED COMP
2860:	AF63	A5	61		LDA	ACCUM1	; TEST FOR COMPLEMNT
2870:	AF65	F0	17		BEG	SUMDON	; NO-THINGS OK
2880:	AF67	20	AA	AF	SUMA2	JSR	COMPA2
2890:	AF6A	E6	69		INC	ACCUM2	; SET SIGN TO NEG
2900:	AF6C	D0	10		BNE	SUMDON	; ALWAYS
;							
2920:	AF6E	A5	61		SUMOV	LDA	ACCUM1
2930:	AF70	D0	0C		BNE	SUMDON	
2940:	AF72	D8			CLD		
2950:	AF73	58			CLI		; INTERRUPTS OK NOW
2960:	AF74	20	0B	B6	JSR	CLEARB	
2970:	AF77	A2	1F		LDX	#31	
2980:	AF79	20	BC	B9	JSR	MESSAG	
2990:	AF7C	18			CLC		; 'C CLR IS OVR FLAG
3000:	AF7D	60			RTS		
;							
3020:	AF7E	18			SUMDON	CLC	; INC RECORD COUNT
3030:	AF7F	A9	01		LDA	#1	; STORED IN REV FORMAT
3040:	AF81	65	15		ADC	INTGER+1	
3050:	AF83	85	15		STA	INTGER+1	
3060:	AF85	A9	00		LDA	#0	
3070:	AF87	65	14		ADC	INTGER	
3080:	AF89	85	14		STA	INTGER	
3090:	AF8B	D8			CLD		; CLEAR DECIMAL MODE
3100:	AF8C	58			CLI		; INTERRUPTS OK NOW
3110:	AF8D	18			CLC		; MOVE TO NEXT RECORD
3120:	AF8E	A5	33		LDA	PCRREC	
3130:	AF90	6D	01	CF	ADC	RECLN	
3140:	AF93	AA			TAX		
3150:	AF94	A5	34		LDA	PCRREC+1	
3160:	AF96	6D	02	CF	ADC	RECLN+1	
3170:	AF99	C5	2E		CMP	PLSREC+1	; TEST FOR END OF FILE
3180:	AF9B	90	05		BCC	SUMAGN	
3190:	AF9D	E4	2D		CPX	PLSREC	
3200:	AF9F	90	01		BCC	SUMAGN	
3210:	AFA1	60			RTS		; 'C SET IS OK FLAG
;							
3230:	AFA2	A8			SUMAGN	TAY	; ADD AGAIN
3240:	AFA3	8A			TXA		
3250:	AFA4	4C	8C	AE	JMP	SUMLOF	
;							
3270:	AFA7	A9	61		COMPA1	LDA	#<ACCUM1
3280:	AFA9	2C			.BYT	#2C	; BIT OP CODE
3290:	AFAA	A9	69		COMPA2	LDA	#<ACCUM2
3300:	AFAC	A0	00		LDY	#>ACCUM1	
3310:	AFAE	85	20		STA	BUFPTR	
3320:	AFB0	84	21		STY	BUFPTR+1	
3330:	AFB2	F8			SED		
3340:	AFB3	78			SEI		; NO INTERRUPTS
3350:	AFB4	38			SEC		
3360:	AFB5	A0	07		LDY	#7	; COMPLEMENT ACCUM
3370:	AFB7	A9	99		COMPLP	LDA	##99
3380:	AFB9	F1	20		SBC	(BUFPTR),Y	
3390:	AFBB	91	20		STA	(BUFPTR),Y	
3400:	AFBD	88			DEY		
3410:	AFBE	D0	F7		BNE	COMPLP	
3420:	AFC0	38			SEC		; ADD ONE TO ACCUM
3430:	AFC1	A0	07		LDY	#7	
3440:	AFC3	A9	00		COMPL1	LDA	#0
3450:	AFC5	71	20		ADC	(BUFPTR),Y	
3460:	AFC7	91	20		STA	(BUFPTR),Y	
3470:	AFC9	88			DEY		


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3480: AFCA D0 F7      BNE COMPL1
3490: AFCC D8         CLD
3500: AFCD 58         CLI           ; INTERUPTS OK NOW
3510: AFCE 60         RTS

;
3530: AFCE A2 01      SUMPRT  LDX  #1
3540: AFD1 A0 27      LDY  #39
3550: AFD3 18         CLC
3560: AFD4 20 F0 FF   JSR  PLOT
3570: AFD7 A5 76      LDA  TEMP2      ; GET FIELD NUM
3580: AFD9 09 80      ORA  ##80
3590: AFDB AA         TAX
3600: AFDC E8         INX
3610: AFDD 20 1A B3   JSR  FLDFWD
3620: AFE0 A9 B0      LDA  ##B0
3630: AFE2 85 75      STA  TEMP      ; CLEAR FLAG
3640: AFE4 A2 01      LDX  #1
3650: AFE6 A4 D3      LDY  COLNUM
3660: AFE8 A5 69      LDA  ACCUM2      ; GET SIGN
3670: AFEA F0 05      BEQ  SUMPR2
3680: AFEC A9 AD      LDA  ##AD      ; REVERSE '-'
3690: AFEE 91 D1      STA  (SCNLIN),Y
3700: AFF0 C8         INY
3710: AFF1 B5 69      SUMPR2  LDA  ACCUM2,X
3720: AFF3 48         PHA
3730: AFF4 4A         LSR           ; MAKE LEFT HALF ASCII
3740: AFF5 4A         LSR
3750: AFF6 4A         LSR
3760: AFF7 4A         LSR
3770: AFF8 09 B0      ORA  ##B0
3780: AFFA C5 75      CMP  TEMP      ; SUPRESS LEADING ZEROS
3790: AFFC F0 05      BEQ  SUMPR3
3800: AFFE 06 75      ASL  TEMP      ; SET PRT FLAG
3810: B000 91 D1      STA  (SCNLIN),Y
3820: B002 C8         INY
3830: B003 E0 05      SUMPR3  CPX  #5
3840: B005 D0 02      BNE  SUMP30
3850: B007 06 75      ASL  TEMP
3860: B009 68         SUMP30  PLA
3870: B00A 29 0F      AND  ##0F      ; MAKE RIGHT HALF ASCII
3880: B00C 09 B0      ORA  ##B0
3890: B00E C5 75      CMP  TEMP
3900: B010 F0 05      BEQ  SUMPR4
3910: B012 06 75      ASL  TEMP      ; SET PRT FLAG
3920: B014 91 D1      STA  (SCNLIN),Y
3930: B016 C8         INY
3940: B017 E8         SUMPR4  INX
3950: B018 E0 06      CPX  #6
3960: B01A D0 D5      BNE  SUMPR2
3970: B01C A9 00      LDA  #0
3980: B01E 85 75      STA  TEMP
3990: B020 B5 6A      LDA  ACCUM2+1,X      ; TEST FOR '.0000'
4000: B022 F0 04      BEQ  SUMPR5
4010: B024 E6 75      INC  TEMP
4020: B026 D0 04      BNE  SUMPR6      ; ALWAYS
4030: B028 B5 69      SUMPR5  LDA  ACCUM2,X
4040: B02A F0 25      BEQ  SUMPDN      ; DO NOT PRINT IT
4050: B02C A9 AE      SUMPR6  LDA  ##AE      ; REV '.
4060: B02E 91 D1      STA  (SCNLIN),Y
4070: B030 C8         SUMPR7  INY
4080: B031 B5 69      LDA  ACCUM2,X
4090: B033 48         PHA
4100: B034 4A         LSR
4110: B035 4A         LSR
4120: B036 4A         LSR
4130: B037 4A         LSR

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4140: B03B 09 B0          ORA  ##B0
4150: B03A 91 D1          STA  (SCNLIN),Y
4160: B03C C8             INY
4170: B03D 68             PLA
4180: B03E 29 0F          AND  ##0F
4190: B040 D0 06          BNE  SUMPR9
4200: B042 A5 75          LDA  TEMP
4210: B044 F0 0B          BEQ  SUMPDN
4220: B046 A9 00          LDA  #0
4230: B048 09 B0          SUMPR9 ORA  ##B0
4240: B04A 91 D1          STA  (SCNLIN),Y
4250: B04C E8             INX
4260: B04D C6 75          DEC  TEMP
4270: B04F 10 DF          BPL  SUMPR7
4280: B051 60          SUMPDN RTS
;
; ROUTINE TO DELETE RECORD
;
4320: B052 A2 06          DELETE LDX  #6          ;TYPE 'Y' TO...
4330: B054 20 BC B9          JSR  MESSAG
4340: B057 20 A7 B5 DELGET JSR  GETCHR
4350: B05A 48             PHA
4360: B05B 20 0B B6          JSR  CLEARB
4370: B05E 68             PLA
4380: B05F C9 59          CMP  #"Y"
4390: B061 D0 12          BNE  DELDON
4400: B063 20 76 B0          JSR  CLOSUP
4410: B066 A5 34          LDA  PCRREC+1
4420: B068 C5 2E          CMP  PLSREC+1
4430: B06A 90 09          BCC  DELDON
4440: B06C A5 33          LDA  PCRREC
4450: B06E C5 2D          CMP  PLSREC
4460: B070 90 03          BCC  DELDON
4470: B072 4C B1 B0          JMP  BAKWRD          ;MOVE AND RETURN
4480: B075 60          DELDON RTS
;
4500: B076 A5 33          CLOSUP LDA  PCRREC ;CLOSE UP HOLE
4510: B078 A4 34          LDY  PCRREC+1
4520: B07A 85 22          CLOSF1 STA  POINTA ;DESTROY ENTRY
4530: B07C 84 23          STY  POINTA+1
4540: B07E 18             CLC
4550: B07F A5 33          LDA  PCRREC
4560: B081 6D 01 CF          ADC  RECLEN
4570: B084 85 24          STA  POINTB
4580: B086 A5 34          LDA  PCRREC+1
4590: B088 6D 02 CF          ADC  RECLEN+1
4600: B08B 85 25          STA  POINTB+1
4610: B08D A0 00          LDY  #0
4620: B08F A5 25          CLOSLF LDA  POINTB+1
4630: B091 C5 2E          CMP  PLSREC+1
4640: B093 90 0F          BCC  CLOSE1
4650: B095 A5 24          LDA  POINTB
4660: B097 C5 2D          CMP  PLSREC
4670: B099 90 09          BCC  CLOSE1
4680: B09B A5 22          LDA  POINTA
4690: B09D A4 23          LDY  POINTA+1
4700: B09F 85 2D          STA  PLSREC
4710: B0A1 84 2E          STY  PLSREC+1
4720: B0A3 60             RTS
4730: B0A4 B1 24          CLOSE1 LDA  (POINTB),Y
4740: B0A6 91 22          STA  (POINTA),Y
4750: B0A8 20 DC B8          JSR  INCFTA
4760: B0AB 20 D5 B8          JSR  INCFTB
4770: B0AE 4C 8F B0          JMP  CLOSLF          ;GO AGAIN
;
4790: B0B1 A5 32          BAKWRD LDA  PBGREC+1 ;TEST BEG FILE

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4800:  B0B3 C5 34      CMP  PCRREC+1
4810:  B0B5 90 0B      BCC  BAKW1
4820:  B0B7 A5 31      LDA  PBGREC
4830:  B0B9 C5 33      CMP  PCRREC
4840:  B0BB 90 05      BCC  BAKW1
4850:  B0BD A2 02      LDX  #2          ;BEG OF FILE
4860:  B0BF 4C BC B9    JMP  MESSAG      ;PRINT & RETURN

;
4880:  B0C2 38          BAKW1  SEC
4890:  B0C3 A5 33      LDA  PCRREC
4900:  B0C5 ED 01 CF    SBC  RECLEN
4910:  B0C8 85 33      STA  PCRREC
4920:  B0CA A5 34      LDA  PCRREC+1
4930:  B0CC ED 02 CF    SBC  RECLEN+1
4940:  B0CF 85 34      STA  PCRREC+1
4950:  B0D1 60          RTS

;
4970:  B0D2 A5 77      FORWRD  LDA  TEMP3      ;DISPLAYED
4980:  B0D4 F0 28      BEQ  FORW2
4990:  B0D6 18          CLC
5000:  B0D7 A5 33      LDA  PCRREC
5010:  B0D9 6D 01 CF    ADC  RECLEN
5020:  B0DC 85 75      STA  TEMP
5030:  B0DE A5 34      LDA  PCRREC+1
5040:  B0E0 6D 02 CF    ADC  RECLEN+1
5050:  B0E3 85 76      STA  TEMP2
5060:  B0E5 C5 2E      CMP  PLSREC+1
5070:  B0E7 90 0D      BCC  FORW1
5080:  B0E9 D0 06      BNE  FORW0
5090:  B0EB A5 75      LDA  TEMP
5100:  B0ED C5 2D      CMP  PLSREC
5110:  B0EF 90 05      BCC  FORW1
5120:  B0F1 A2 03      FORW0  LDX  #3          ;END OF FILE
5130:  B0F3 4C BC B9    JMP  MESSAG      ;PRINT & RETURN

;
5150:  B0F6 A5 75      FORW1  LDA  TEMP      ;MOVE POINTER
5160:  B0F8 85 33      STA  PCRREC
5170:  B0FA A5 76      LDA  TEMP2
5180:  B0FC 85 34      STA  PCRREC+1
5190:  B0FE 20 06 B1    FORW2  JSR  DISREC
5200:  B101 A9 01      LDA  #1
5210:  B103 85 77      STA  TEMP3      ;RECORD DISPLAYED
5220:  B105 60          RTS

;
; DISPLAY RECORD POINTED TO BY
; -PCRREC-
;
5270:  B106 A5 33      DISREC  LDA  PCRREC      ;DISPLAY RECORD
5280:  B108 A4 34      LDY  PCRREC+1
5290:  B10A 85 22      STA  POINTA
5300:  B10C 84 23      STY  POINTA+1
5310:  B10E 20 DC B8    JSR  INCPTA      ;SKIP FIRST BYTE
5320:  B111 A9 50      LDA  #80          ;<SCREEN+80
5330:  B113 A0 C8      LDY  #>SCREEN
5340:  B115 85 24      STA  POINTB
5350:  B117 84 25      STY  POINTB+1
5360:  B119 A0 00      LDY  #0
5370:  B11B B1 24      DISR1  LDA  (POINTB),Y      ;SCREEN
5380:  B11D 10 0F      BPL  DISR2
5390:  B11F B1 22      LDA  (POINTA),Y      ;DATA
5400:  B121 30 1A      BMI  DISDN      ;$80 IS END
5410:  B123 F0 18      BEQ  DISDN      ;ZERO IS END ALSO
5420:  B125 29 3F      AND  ##3F
5430:  B127 09 80      ORA  ##80
5440:  B129 91 24      STA  (POINTB),Y      ;SCREEN
5450:  B12B 20 DC B8    JSR  INCPTA

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5460: B12E 20 D5 B8 DISR2 JSR INCPTB
5470: B131 A5 25 LDA POINTB+1
5480: B133 C9 CB CMP ##CB
5490: B135 90 E4 BCC DISR1
5500: B137 A5 24 LDA POINTB
5510: B139 C9 97 CMP #151 ;END OF VALID SCREEN
5520: B13B 90 DE BCC DISR1
5530: B13D 60 DISDN RTS
;
; ROUTINE TO STORE DATA ENTERED
;
5570: B13E 18 STODAT CLC ;TEST AVAIL RAM
5580: B13F A5 2D LDA FLSREC
5590: B141 6D 01 CF ADC RECLEN
5600: B144 85 75 STA TEMP
5610: B146 A5 2E LDA FLSREC+1
5620: B148 6D 02 CF ADC RECLEN+1
5630: B14B C5 38 CMP TOPRAM+1
5640: B14D 90 10 BCC STORE1
5650: B14F A5 75 LDA TEMP
5660: B151 C5 37 CMP TOPRAM
5670: B153 90 0A BCC STORE1
5680: B155 A2 04 LDX #4 ;'OUT OF MEMORY...'
5690: B157 20 BC B9 JSR MESSAG
5700: B15A 68 PLA ;SCRAP RTS
5710: B15B 68 PLA
5720: B15C 4C F1 A3 JMP OPTIN1
;
5740: B15F A9 00 STORE1 LDA #0
5750: B161 85 FD STA CHANGE ;NOT CHANGE
;
5770: B163 A5 2D LDA FLSREC ;SET POINTERS
5780: B165 A4 2E LDY FLSREC+1
5790: B167 85 33 STA PCRREC
5800: B169 84 34 STY PCRREC+1
5810: B16B A5 33 CHGDAT LDA PCRREC
5820: B16D A4 34 LDY PCRREC+1
5830: B16F 85 22 STA POINTA
5840: B171 84 23 STY POINTA+1
5850: B173 A0 00 LDY #0
5860: B175 98 TYA
5870: B176 91 22 STA (POINTA),Y ;EXTRA BYTE
;
5890: B178 20 DC B8 JSR INCPTA
5900: B17B E6 CC INC BLIKSW ;BLINK OFF
5910: B17D A9 50 LDA #80 ;<SCREEN+80
5920: B17F A0 C8 LDY #>SCREEN
5930: B181 85 24 STA POINTB
5940: B183 84 25 STY POINTB+1
5950: B185 A0 00 LDY #0
5960: B187 84 FB STY TEMPFL ;FIELD NUMBER
5970: B189 A9 15 LDA #21
5980: B18B 85 80 STA ROWCNT
5990: B18D A9 28 CHG0 LDA #40
6000: B18F 85 81 STA COLCNT
6010: B191 B1 24 CHG1 LDA (POINTB),Y
6020: B193 30 0F BMI CHG4
6030: B195 20 D5 B8 JSR INCPTB
6040: B198 C6 81 DEC COLCNT
6050: B19A A5 81 CHG2 LDA COLCNT
6060: B19C D0 F3 BNE CHG1
6070: B19E C6 80 DEC ROWCNT
6080: B1A0 D0 EB BNE CHG0
6090: B1A2 F0 4C BEQ CHG92 ;ALWAYS
;
6110: B1A4 A6 FB CHG4 LDX TEMPFL ;GET FIELD NUM

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6120:	B1A6	E6	FB		INC	TEMPFL	
6130:	B1A8	BD	07	CF	LDA	FLDTBL,X	;GET TYPE & LEN
6140:	B1AB	48			PHA		
6150:	B1AC	29	3F		AND	##3F	
6160:	B1AE	AA			TAX		; 'X IS LENGTH
6170:	B1AF	68			PLA		
6180:	B1B0	48			PHA		
6190:	B1B1	10	0E		BPL	CHG41	
6200:	B1B3	29	40		AND	##40	;TEST BIT 6
6210:	B1B5	D0	0A		BNE	CHG41	
6220:	B1B7	20	38	B2	JSR	NUMER	;DO NUMERIC INPUT
6230:	B1BA	68			PLA		;NO EFFECT OF 'C
6240:	B1BB	90	12		BCC	CHG6	
6250:	B1BD	A2	0D		LDX	#13	;INVALID NUMBER
6260:	B1BF	D0	44		BNE	CHGERR	;ALWAYS
6270:	B1C1	20	22	B2	JSR	CHACTR	;DO INPUT
6280:	B1C4	68			PLA		;NO EFFECT ON 'C
6290:	B1C5	10	08		BPL	CHG6	
6300:	B1C7	46	76		LSR	TEMP2	;TEST IF INPUT HAD CHAR
6310:	B1C9	B0	04		BCS	CHG6	;YES
6320:	B1CB	A2	0C		LDX	#12	;REQUIRED
6330:	B1CD	D0	36		BNE	CHGERR	;ALWAYS
6350:	B1CF	84	75		CHG6	STY	TEMP ;SAVE LENGTH
6360:	B1D1	A0	00		LDY	#0	
6370:	B1D3	B1	24		CHG61	LDA	(POINTB),Y
6380:	B1D5	29	3F		AND	##3F	
6390:	B1D7	C9	20		CMP	##20	
6400:	B1D9	B0	02		BCS	CHG7	
6410:	B1DB	09	40		ORA	##40	
6420:	B1DD	91	22		CHG7	STA	(POINTA),Y
6430:	B1DF	20	D5	B8	JSR	INCPTB	
6440:	B1E2	20	DC	B8	JSR	INCPTA	
6450:	B1E5	C6	81		DEC	COLCNT	
6460:	B1E7	F0	04		BEQ	CHG8	;END OF LINE
6470:	B1E9	C6	75		DEC	TEMP	
6480:	B1EB	10	E6		BPL	CHG61	
6490:	B1ED	4C	9A	B1	CHG8	JMP	CHG2
6510:	B1F0	A5	FD		CHG92	LDA	CHANGE ;IS IT CHANGE
6520:	B1F2	D0	0A		BNE	CHGDON	;YES-SKIP END STUFF
6530:	B1F4	91	22		STA	(POINTA),Y	;NO-ZERO AT END
6540:	B1F6	A5	22		LDA	POINTA	;SET IT
6550:	B1F8	A4	23		LDY	POINTA+1	
6560:	B1FA	85	2D		STA	PLSREC	
6570:	B1FC	84	2E		STY	PLSREC+1	
6580:	B1FE	A2	26		CHGDON	LDX	#38 ;'RECORD STOR...
6590:	B200	20	BC	B9	JSR	MESSAG	
6600:	B203	18			CLC		
6610:	B204	60			RTS		
6630:	B205	A5	80		CHGERR	LDA	ROWCNT
6640:	B207	85	75		STA	TEMP	
6650:	B209	A5	81		LDA	COLCNT	
6660:	B20B	85	76		STA	TEMP2	
6670:	B20D	20	BC	B9	JSR	MESSAG	
6680:	B210	38			SEC		
6690:	B211	A9	17		LDA	#23	
6700:	B213	E5	75		SBC	TEMP	
6710:	B215	AA			TAX		
6720:	B216	38			SEC		
6730:	B217	A9	28		LDA	#40	
6740:	B219	E5	76		SBC	TEMP2	
6750:	B21B	A8			TAY		
6760:	B21C	18			CLC		
6770:	B21D	20	F0	FF	JSR	PLOT	

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6780: B220 38 SEC ;FLAG ERROR
6790: B221 60 RTS

;
6810: B222 A9 00 CHACTR LDA #0
6820: B224 85 76 STA TEMP2
6830: B226 B1 24 CHAC1 LDA (POINTB),Y
6840: B228 10 0D BFL CHARTS
6850: B22A C9 A0 CMP #160
6860: B22C F0 04 BEQ CHRNXT
6870: B22E A9 FF LDA $$FF
6880: B230 85 76 STA TEMP2
6890: B232 C8 CHRNXT INY
6900: B233 CA DEX
6910: B234 D0 F0 BNE CHAC1
6920: B236 88 DEY
6930: B237 60 CHARTS RTS

;
6950: B238 B1 24 NUMER LDA (POINTB),Y
6960: B23A 10 19 BFL NUMRTS
6970: B23C C9 A0 CMP #160
6980: B23E F0 10 BEQ NUMOK
6990: B240 C9 AD CMP $$AD ; '-'
7000: B242 F0 0C BEQ NUMOK
7010: B244 C9 AE CMP $$AE ; '.'
7020: B246 F0 08 BEQ NUMOK
7030: B248 C9 B0 CMP $$B0 ; '0'
7040: B24A 90 0B BCC NUMBAD
7050: B24C C9 BA CMP $$BA ; '9'+1
7060: B24E B0 07 BCS NUMBAD
7070: B250 C8 NUMOK INY
7080: B251 CA DEX
7090: B252 D0 E4 BNE NUMER
7100: B254 88 DEY
7110: B255 18 NUMRTS CLC
7120: B256 60 RTS

;
7140: B257 38 NUMBAD SEC
7150: B258 60 RTS

;
; ROUTINE TO ENTER DATA INTO
; DEFINED FIELDS
;
7200: B259 A2 11 ENTDAT LDX #17
7210: B25B 20 BC B9 JSR MESSAG
7220: B25E A2 01 ENTA1 LDX #1
7230: B260 A0 27 LDY #39
7240: B262 18 CLC
7250: B263 20 F0 FF JSR PLOT
7260: B266 A2 01 LDX #1
7270: B268 20 1A B3 ENTD1 JSR FLDFWD
7280: B26B 4C 79 B2 JMP ENTD3

;
7300: B26E A5 FF ENTD2 LDA MSGFL
7310: B270 F0 07 BEQ ENTD3
7320: B272 20 0B B6 JSR CLEARB
7330: B275 A9 00 LDA #0
7340: B277 85 FF STA MSGFL
7350: B279 20 DA B3 ENTD3 JSR RCSRCL
7360: B27C A9 00 LDA #0
7370: B27E 85 CC STA BLIKSW ;BLINK ON
7380: B280 20 A7 B5 ENTGET JSR GETCHR
7390: B283 C9 85 CMP #PF1 ;<F1>
7400: B285 D0 05 BNE ENTG1
7410: B287 20 7C B5 JSR BLKOFF
7420: B28A 18 CLC ;CLEAR FLAG-SAVE IT
7430: B28B 60 RTS

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7440: B28C C9 B8      ENTG1      CMP    #FF7      ; <F7>
7450: B28E D0 05      BNE    ENTG2
7460: B290 20 7C B5      JSR    BLKOFF
7470: B293 38          SEC          ; SET FLAG-NO SAVE
7480: B294 60          RTS
7490: B295 C9 20      ENTG2      CMP    ##20
7500: B297 90 1F      BCC    ENTST1
7510: B299 C9 60      CMP    ##60
7520: B29B B0 1B      BCS    ENTST1
7530: B29D E6 C7      INC    REVFLG
7540: B29F 20 76 B5      JSR    EDOUT
7550: B2A2 A2 00      LDX    #0
7560: B2A4 86 C7      STX    REVFLG
7570: B2A6 86 FB      STX    TEMPFL
7580: B2A8 E6 CC      INC    BLIKSW      ; BLINK OFF
7590: B2AA A2 01      LDX    #1
7600: B2AC 86 75      STX    TEMP
7610: B2AE A4 D3      LDY    COLNUM
7620: B2B0 A6 D6      LDX    LINNUM
7630: B2B2 20 25 B3      JSR    FLDCO
7640: B2B5 4C 6E B2      JMP    ENTD2

;
7660: B2B8 C9 14      ENTST1     CMP    #20      ; DELETE
7670: B2BA D0 1A      BNE    ENTST1
7680: B2BC 20 7C B5      JSR    BLKOFF
7690: B2BF A2 01      LDX    #1
7700: B2C1 20 7B B3      JSR    FLDBWD
7710: B2C4 E6 C7      INC    REVFLG
7720: B2C6 A9 20      LDA    # " "
7730: B2C8 20 76 B5      JSR    EDOUT
7740: B2CB A2 00      LDX    #0
7750: B2CD 86 C7      STX    REVFLG
7760: B2CF E8          INX
7770: B2D0 20 7B B3      JSR    FLDBWD
7780: B2D3 4C 6E B2      JMP    ENTD2
7790: B2D6 C9 9D      ENTST1     CMP    #157     ; CRSR LEFT
7800: B2D8 D0 04      BNE    ENTST2
7810: B2DA A2 01      LDX    #1
7820: B2DC D0 33      BNE    FLDBCK
7830: B2DE C9 91      ENTST2     CMP    #145     ; CRSR UP
7840: B2E0 D0 04      BNE    ENTST3
7850: B2E2 A2 81      LDX    ##81
7860: B2E4 D0 2B      BNE    FLDBCK
7870: B2E6 C9 0D      ENTST3     CMP    #13      ; <CR>
7880: B2E8 D0 04      BNE    ENTST4
7890: B2EA A2 81      LDX    ##81
7900: B2EC D0 1D      BNE    FLDAHD
7910: B2EE C9 11      ENTST4     CMP    #17      ; CRSR DOWN
7920: B2F0 D0 04      BNE    ENTST5
7930: B2F2 A2 81      LDX    ##81
7940: B2F4 D0 15      BNE    FLDAHD
7950: B2F6 C9 1D      ENTST5     CMP    #29      ; CRSR RIGHT
7960: B2F8 D0 04      BNE    ENTST6
7970: B2FA A2 01      LDX    #1
7980: B2FC D0 0D      BNE    FLDAHD
7990: B2FE C9 13      ENTST6     CMP    #19      ; HOME
8000: B300 D0 06      BNE    ENTST7
8010: B302 20 7C B5      JSR    BLKOFF
8020: B305 4C 5E B2      JMP    ENTA1

;
8040: B308 4C 80 B2      ENTST7     JMP    ENTGET

;
8060: B30B 20 7C B5      FLDAHD     JSR    BLKOFF
8070: B30E 4C 68 B2      JMP    ENTD1
8080: B311 20 7C B5      FLDBCK     JSR    BLKOFF
8090: B314 20 7B B3      JSR    FLDBWD

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8100: B317 4C 6E 82 JMP ENTD2
;
; MOVE TO NEXT POSITION IN FIELD
; IF HIGH BIT OF 'X' IS SET THEN
; MOVE TO NEXT 'X' FIELDS
;
8160: B31A 86 75 FLDFWD STX TEMP ;SAVE DIRECT
8170: B31C A9 00 FLDF00 LDA #0
8180: B31E 85 FB STA TEMPFL
8190: B320 A4 D3 FLDF0 LDY COLNUM
8200: B322 A6 D6 LDX LINNUM
8210: B324 C8 INY
8220: B325 C0 28 FLDC0 CPY #40
8230: B327 90 20 BCC FLDF1
8240: B329 E8 INX
8250: B32A E0 17 CPX #23
8260: B32C 90 0A BCC FLDF01
8270: B32E A2 02 LDX #2
8280: B330 A9 28 LDA #40 ;<SCREEN+40
8290: B332 A0 C8 LDY #>SCREEN
8300: B334 85 D1 STA SCNLIN
8310: B336 84 D2 STY SCNLIN+1
8320: B338 A0 00 FLDF01 LDY #0
8330: B33A A9 01 LDA #1
8340: B33C 85 FB STA TEMPFL
8350: B33E 18 CLC
8360: B33F A9 28 LDA #40
8370: B341 65 D1 ADC SCNLIN
8380: B343 85 D1 STA SCNLIN
8390: B345 90 02 BCC FLDF1
8400: B347 E6 D2 INC SCNLIN+1
8410: B349 86 D6 FLDF1 STX LINNUM
8420: B34B 84 D3 STY COLNUM
8430: B34D A5 75 LDA TEMP ;MOVEMENT
8440: B34F 30 18 BMI FLDF2
8450: B351 B1 D1 FLDF11 LDA (SCNLIN),Y
8460: B353 30 04 BMI FLDFDN
8470: B355 E6 FB INC TEMPFL
8480: B357 D0 C7 BNE FLDF0
8490: B359 C6 75 FLDFDN DEC TEMP
8500: B35B A5 75 LDA TEMP
8510: B35D 29 7F AND #$7F
8520: B35F D0 BB BNE FLDF00
8530: B361 A5 FB FLDFD0 LDA TEMPFL
8540: B363 F0 03 BEQ FLDFD1
8550: B365 20 48 B8 JSR BIP
8560: B368 60 FLDFD1 RTS
;
8580: B369 A5 FB FLDF2 LDA TEMPFL
8590: B36B D0 08 BNE FLDF3
8600: B36D B1 D1 LDA (SCNLIN),Y
8610: B36F 30 AF BMI FLDF0
8620: B371 E6 FB INC TEMPFL
8630: B373 D0 AB BNE FLDF0 ;ALWAYS
8640: B375 B1 D1 FLDF3 LDA (SCNLIN),Y
8650: B377 10 A7 BPL FLDF0
8660: B379 30 DE BMI FLDFDN ;ALWAYS
;
; MOVE A FIELD OR CHARACTER BACK
;
8700: B37B 86 75 FLDBWD STX TEMP ;SAVE DIRECT
8710: B37D A9 00 LDA #0
8720: B37F 85 FB STA TEMPFL
8730: B381 A4 D3 FLDB0 LDY COLNUM
8740: B383 A6 D6 LDX LINNUM
8750: B385 88 DEY

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8760: B386 10 21 BPL FLDB1
8770: B388 A0 27 LDY #39
8780: B38A CA DEX
8790: B38B E0 01 CPX #1
8800: B38D D0 0B BNE FLDB01
8810: B38F A2 02 LDX #2
8820: B391 A0 00 LDY #0
8830: B393 18 CLC
8840: B394 20 F0 FF JSR PLOT
8850: B397 4C 51 B3 JMP FLDF11 ;GO AHEAD TO FIRST
8860: B39A A9 01 FLDB01 LDA #1
8870: B39C 85 FB STA TEMPFL
8880: B39E 38 SEC
8890: B39F A5 D1 LDA SCNLIN
8900: B3A1 E9 28 SBC #40
8910: B3A3 85 D1 STA SCNLIN
8920: B3A5 B0 02 BCS FLDB1
8930: B3A7 C6 D2 DEC SCNLIN+1
8940: B3A9 86 D6 FLDB1 STX LINNUM
8950: B3AB 84 D3 STY COLNUM
8960: B3AD A5 75 LDA TEMP ;MOVEMENT
8970: B3AF 30 10 BMI FLDB2
8980: B3B1 B1 D1 LDA (SCNLIN),Y
8990: B3B3 30 04 BMI FLDBDN
9000: B3B5 E6 FB INC TEMPFL
9010: B3B7 D0 C8 BNE FLDB0
9020: B3B9 A5 FB FLDBDN LDA TEMPFL
9030: B3BB F0 03 BEQ FLDBD1
9040: B3BD 20 48 B8 JSR BIP
9050: B3C0 60 FLDBD1 RTS
;
9070: B3C1 A5 FB FLDB2 LDA TEMPFL
9080: B3C3 D0 0B BNE FLDB3
9090: B3C5 B1 D1 LDA (SCNLIN),Y
9100: B3C7 30 B8 BMI FLDB0
9110: B3C9 E6 FB INC TEMPFL
9120: B3CB D0 B4 BNE FLDB0 ;ALWAYS
9130: B3CD B1 D1 FLDB3 LDA (SCNLIN),Y
9140: B3CF 10 B0 BPL FLDB0
9150: B3D1 88 DEY
9160: B3D2 30 E5 BMI FLDBDN
9170: B3D4 B1 D1 LDA (SCNLIN),Y
9180: B3D6 10 E1 BPL FLDBDN
9190: B3D8 30 A7 BMI FLDB0
;
9210: B3DA ; FILE8,"FILER.PAL PT8"
; MICROFILER PT8
;
;
130: B3DA 20 24 EA RCSRCL JSR SYNCOL ;READ CRSR COLOR
140: B3DD A4 D3 LDY COLNUM
150: B3DF B1 F3 LDA (PCCRAM),Y
160: B3E1 29 0F AND #$0F
170: B3E3 8D 86 02 STA CCOLOR
180: B3E6 60 RTS
;
; PRINT SCREEN DATA
;
220: B3E7 A9 01 SCRNP1 LDA #1 ;PRINT TYPE DATA
230: B3E9 2C .BYT #2C ;BIT OPCODE
240: B3EA A9 00 SCRNP1 LDA #0 ;PRINT DATA ONLY
250: B3EC 85 FE STA SCMODE ;STORE MODE
260: B3EE 8D 00 CF STA MAXFLD ;SET POINTER
270: B3F1 A5 2B LDA FBGSDT
280: B3F3 A4 2C LDY FBGSDT+1
290: B3F5 85 24 STA POINTB

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300:    B3F7 84 25      STY    POINTB+1
310:    B3F9 A2 02      LDX    #2
320:    B3FB A0 00      LDY    #0
330:    B3FD 18         CLC
340:    B3FE 20 F0 FF    JSR    PLOT
350:    B401 A0 00      LDY    #0      ;ENTRY MAIN ONLY
360:    B403 84 C7      STY    REVFLG  ;REV OFF
370:    B405 20 7C B5    JSR    BLKOFF
380:    B408 B1 24      LDA    (POINTB),Y
390:    B40A F0 0A      BEQ    SCR2
400:    B40C 20 16 E7    JSR    SCROUT
410:    B40F 84 D4      STY    QUOTSW  ;CANCEL QUOTE
420:    B411 20 D5 B8    JSR    INCPTB
430:    B414 D0 F2      BNE    SCRLOP  ;ALWAYS

;
450:    B416 20 D5 B8    JSR    INCPTB
460:    B419 B1 24      LDA    (POINTB),Y
470:    B41B F0 4D      BEQ    SCNDON  ;2 'O IS DONE
480:    B41D 48         PHA
490:    B41E 20 D5 B8    JSR    INCPTB
500:    B421 B1 24      LDA    (POINTB),Y
510:    B423 AA         TAX
520:    B424 AD 00 CF    LDA    MAXFLD
530:    B427 30 18      BMI    SCR20  ;NO SAVE DATA
540:    B429 A8         TAY
550:    B42A 68         PLA      ;GET CHAR
560:    B42B 48         PHA
570:    B42C 10 13      BPL    SCR20
580:    B42E 29 03      AND    #3
590:    B430 18         CLC
600:    B431 6A         ROR      ;MAKE 2 LOW BITS HIGH
610:    B432 6A         ROR
620:    B433 6A         ROR
630:    B434 99 07 CF    STA    FLDTBL,Y
640:    B437 8A         TXA
650:    B438 19 07 CF    ORA    FLDTBL,Y
660:    B43B 99 07 CF    STA    FLDTBL,Y  ;ADD IN LENGTH
670:    B43E EE 00 CF    INC    MAXFLD
680:    B441 A0 00      LDY    #0      ;CLEAR 'Y
690:    B443 68         PLA
700:    B444 C9 A0      CMP    #160
710:    B446 F0 10      BEQ    SCR29
720:    B448 C9 E3      CMP    #227  ;REV C
730:    B44A F0 04      BEQ    SCR27
740:    B44C C9 EE      CMP    #238  ;REV N
750:    B44E D0 0E      BNE    SCR3
760:    B450 29 5F      AND    #%01011111
770:    B452 48         PHA
780:    B453 A5 FE      LDA    SCMODE
790:    B455 D0 04      BNE    SCR28
800:    B457 68         PLA
810:    B458 A9 20      LDA    #" "
820:    B45A 48         PHA
830:    B45B 68         PLA
840:    B45C E6 C7      INC    REVFLG  ;SET REVERSE FLAG
850:    B45E 20 16 E7    JSR    SCROUT
860:    B461 A9 20      LDA    #" "
870:    B463 CA         DEX
880:    B464 D0 F8      BNE    SCR3
890:    B466 86 C7      STX    REVFLG  ;REVERSE OFF
900:    B468 F0 A7      BEQ    SCRNXN  ;ALWAYS

;
920:    B46A AD 00 CF    SCNDON LDA    MAXFLD  ;TEST FOR MAIN
930:    B46D 30 38      BMI    SCNRT  ;YES-DO NOT SETUP
940:    B46F 20 D5 B8    JSR    INCPTB
950:    B472 B1 24      LDA    (POINTB),Y

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```

960:    B474 8D 00 CF      STA  MAXFLD
970:    B477 20 D5 B8      JSR  INCPTB
980:    B47A B1 24          LDA  (POINTB),Y
990:    B47C 8D 01 CF      STA  RECLEN
1000:   B47F 20 D5 B8      JSR  INCPTB
1010:   B482 B1 24          LDA  (POINTB),Y
1020:   B484 8D 02 CF      STA  RECLEN+1
1030:   B487 20 D5 B8      JSR  INCPTB
1040:   B48A A5 24          LDA  POINTB
1050:   B48C A4 25          LDY  POINTB+1
1060:   B48E 85 2F          STA  PFRMPT      ;SET FORM PRINT PTR
1070:   B490 84 30          STY  PFRMPT+1

```

```

1090:   B492 AE 00 CF      ;
1100:   B495 E8              LDX  MAXFLD      ;GET NUMBER OF FLDS
1110:   B496 8A              INX              ;PLUS 2-LM & LINES
1120:   B497 0A              TXA
1130:   B498 AA              ASL              ;MULTIPLY BY 2
1140:   B499 20 D5 B8 SCNDN1 JSR  INCPTB      ;DUMP FORM
1150:   B49C CA              DEX              ;PRINT DATA
1160:   B49D D0 FA              BNE  SCNDN1

```

```

1180:   B49F A5 24          ;
1190:   B4A1 A4 25          LDA  POINTB
1200:   B4A3 85 31          LDY  POINTB+1
1210:   B4A5 84 32          STA  PBGREC
1220:   B4A7 20 99 B5 SCNRT JSR  UNWRAP
1230:   B4AA 60              STY  PBGREC+1

```

```

;
; ROUTINE TO DESIGN SCREEN
;

```

```

1270:   B4AB A2 08          DESIGN LDX  #8
1280:   B4AD 20 BC B9          JSR  MESSAG
1290:   B4B0 A9 05          DESB1  LDA  #5      ;WHITE
1300:   B4B2 20 76 B5          JSR  EDOUT
1310:   B4B5 A9 13          LDA  #19      ;HOME
1320:   B4B7 20 29 B5          JSR  CHKPRT   ;PRINT IT
1330:   B4BA 4C C8 B4          JMP  DESBK   ;GO TO LOOP

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```

1350:   B4BD A5 FF          DESLOP LDA  MSGFL
1360:   B4BF F0 07          BEQ  DESBK
1370:   B4C1 20 0B B6          JSR  CLEARB
1380:   B4C4 A9 00          LDA  #0
1390:   B4C6 85 FF          STA  MSGFL
1400:   B4C8 A9 00          DESEBK LDA  #0
1410:   B4CA 85 CC          STA  BLIKSW   ;EN BLINK
1420:   B4CC 85 D4          STA  QUOTSW   ;DIS QUOTE
1430:   B4CE 20 A7 B5 DESC3 JSR  GETCHR
1440:   B4D1 C9 85          CMP  #PF1     ;<F1>
1450:   B4D3 D0 02          BNE  DES0
1460:   B4D5 18              CLC
1470:   B4D6 60              RTS
1480:   B4D7 C9 88          DES0  CMP  #PF7     ;<F7>
1490:   B4D9 D0 01          BNE  DES1
1500:   B4DB 60              RTS      ;'C WILL BE SET
1510:   B4DC C9 20          DES1  CMP  ##20
1520:   B4DE 90 19          BCC  CHKTBL
1530:   B4E0 C9 60          CMP  ##60
1540:   B4E2 90 0C          BCC  DESDON
1550:   B4E4 A6 C7          LDX  REVFLG   ;STOP IF REV MODE
1560:   B4E6 D0 11          BNE  CHKTBL
1570:   B4E8 C9 A0          CMP  ##A0
1580:   B4EA 90 0D          BCC  CHKTBL
1590:   B4EC C9 E0          CMP  ##E0
1600:   B4EE B0 CD          BCS  DESLOP
1610:   B4F0 20 29 B5 DESDON JSR  CHKPRT

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```

1620: B4F3 20 99 B5 DES2      JSR UNWRAP      ; CANCEL WRAP
1630: B4F6 4C BD B4      JMP DESLOP

;
1650: B4F9 A2 19      CHKTBL LDX #25
1660: B4FB DD 0B B5 CHKTLP CMP OKKEYS,X
1670: B4FE F0 05      BEQ DES3
1680: B500 CA      DEX
1690: B501 10 F8      BPL CHKTLP
1700: B503 30 B8      BMI DESLOP

;
1720: B505 20 29 B5 DES3      JSR CHKPR1
1730: B508 4C F3 B4      JMP DES2

;
1750: B50B 05 0D 11 OKKEYS .BYT 5,13,17,18,19,20,28
1760: B512 1D 1E 1F .BYT 29,30,31,129,145,146,148,149
1770: B51A 96 97 98 .BYT 150,151,152,153,154,155,156
1780: B521 9D 9E 9F .BYT 157,158,159,160

;
1800: B525 11 1D 91 CURSUR .BYT 17,29,145,157

;
1820: B529 C9 94      CHKPR1 CMP #148      ; INSERT
1830: B52B D0 03      BNE CHKPR1
1840: B52D 4C C1 B5      JMP INSERT    ; DO INSERT AND RETURN
1850: B530 C9 A0      CHKPR1 CMP #160      ; MAKE SHIFT SPACE
1860: B532 08      PHP
1870: B533 D0 04      BNE CHKOK     ; A REV SPACE
1880: B535 E6 C7      INC REVFLG
1890: B537 A9 20      LDA #" "
1900: B539 20 76 B5 CHKOK JSR EDOUT      ; PRINT IT
1910: B53C A2 00      LDX #0
1920: B53E 28      PLP
1930: B53F F0 07      BEQ CHK11
1940: B541 A2 03      LDX #3      ; DISABLE REV ON CRSR
1950: B543 DD 25 B5 CHK1  CMP CURSUR,X
1960: B546 D0 04      BNE CHK12
1970: B548 A9 00      CHK11 LDA #0
1980: B54A 85 C7      STA REVFLG
1990: B54C CA      CHK12 DEX
2000: B54D 10 F4      BPL CHK1
2010: B54F A5 D3      LDA COLNUM
2020: B551 C9 28      CMP #40
2030: B553 D0 07      BNE CHK2
2040: B555 A2 00      LDX #0
2050: B557 86 D3      STX COLNUM
2060: B559 20 6C E5      JSR SETSCN    ; SET SCREEN POINTERS
2070: B55C A5 D6      CHK2 LDA LINNUM
2080: B55E C9 02      CMP #2      ; 2 LINES AT TOP
2090: B560 B0 0A      BCS CHK3
2100: B562 A9 A0      LDA #160     ; FIX DELETE ERROR
2110: B564 8D 4F C8      STA SCREEN+79 ; IF TOP RIGHT CORNER
2120: B567 A9 0D      LDA #13      ; CRSR DOWN
2130: B569 08      PHP
2140: B56A D0 CD      BNE CHKOK     ; ALWAYS
2150: B56C C9 17      CHK3 CMP #23      ; 2 LINES AT BOTTOM
2160: B56E 90 05      BCC CHKDON
2170: B570 A9 91      LDA #145
2180: B572 08      PHP
2190: B573 D0 C4      BNE CHKOK     ; ALWAYS
2200: B575 60      CHKDON RTS

;
2220: B576 20 7C B5 EDOUT JSR BLKOFF    ; EDITOR OUTPUT
2230: B579 4C 16 E7      JMP SCROUT    ; PRINT & RETURN

;
; BLINK CURSUR OFF IF NEEDED
; DOES NOT EFFECT 'A','X','Y, OR 'C
;

```

```

2280: B57C 48          BLKOFF   PHA          ; BLINK CRSR OFF
2290: B57D E6 CC      INC      BLIKSW      ; BLINK OFF
2300: B57F A5 CF      LDA      BLIKON      ; IS BLINK ON
2310: B581 F0 14      BEQ      BLKOK       ; NO - CONT
2320: B583 8A          TXA
2330: B584 48          PHA
2340: B585 98          TYA
2350: B586 48          PHA
2360: B587 A5 CE      LDA      BLIKCH      ; GET CHAR
2370: B589 AE 87 02   LDX      CHRBKG      ; GET BKGCLR
2380: B58C A0 00      LDY      #0
2390: B58E 84 CF      STY      BLIKON      ; BLINK OFF
2400: B590 20 13 EA   JSR      BLIPRT      ; PRINT CHR UNDR CSR
2410: B593 68          PLA
2420: B594 A8          TAY
2430: B595 68          PLA
2440: B596 AA          TAX
2450: B597 68          PLA
2460: B598 60          RTS

;
2480: B599 A2 00      UNWRAP   LDX      #0          ; CANCEL WRAP TBL
2490: B59B B5 D9      WRAP1    LDA      WRAP, X
2500: B59D 09 80      ORA      #$80
2510: B59F 95 D9      STA      WRAP, X
2520: B5A1 E8          INX
2530: B5A2 E0 1A      CPX      #$1A
2540: B5A4 90 F5      BCC      WRAP1
2550: B5A6 60          RTS

;
; ROUTINE TO GET A CHARACTER
;
2590: B5A7 A9 00      GETCHR   LDA      #0
2600: B5A9 85 C6      STA      NUMCHR      ; DUMP KEY BUFFER
2610: B5AB A9 05      LDA      #<GETFN      ; PART OF DESTROY

;
2630: B5AD          .IF      CART-1

;
2650: B5AD A4 38      LDY      TOPRAM+1      ; DESTROY ROM ATTEMPT
2660: B5AF C8          INY
2670: B5B0 85 61      STA      ACCUM1
2680: B5B2 84 62      STY      ACCUM1+1
2690: B5B4 91 61      GETDES   STA      (ACCUM1), Y
2700: B5B6 88          DEY
2710: B5B7 D0 FB      BNE      GETDES

;
2730: B5B9 20 42 F1   GETCHL   JSR      GETKEY      ; GET KEYBOARD
2740: B5BC C9 04      CMP      #4          ; NO <RUN/STOP>
2750: B5BE 90 F9      BCC      GETCHL      ; DUMP ALL UNDER IT
2760: B5C0 60          RTS

;
; ROUTINE TO INSERT CHARS IN LINE
;
2800: B5C1 20 7C B5   INSERT   JSR      BLKOFF
2810: B5C4 A0 27      LDY      #39          ; SCREEN LINE LEN
2820: B5C6 B1 D1      LDA      (SCNLIN), Y
2830: B5C8 C9 20      CMP      #" "
2840: B5CA D0 04      BNE      INSRT1
2850: B5CC C4 D3      CPY      COLNUM
2860: B5CE D0 04      BNE      INSRT2
2870: B5D0 C0 27      INSRT1   CPY      #39
2880: B5D2 F0 1F      BEQ      INSDON
2890: B5D4 A0 27      INSRT2   LDY      #39
2900: B5D6 20 24 EA   JSR      SYNCOL
2910: B5D9 88          INSRT3   DEY
2920: B5DA B1 D1      LDA      (SCNLIN), Y
2930: B5DC C8          INY

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2940: B5DD 91 D1          STA (SCNLIN),Y
2950: B5DF 88             DEY
2960: B5E0 B1 F3          LDA (PCCRAM),Y
2970: B5E2 C8             INY
2980: B5E3 91 F3          STA (PCCRAM),Y
2990: B5E5 88             DEY
3000: B5E6 C4 D3          CPY COLNUM
3010: B5E8 D0 EF          BNE INSRT3
3020: B5EA A9 20          LDA #" "
3030: B5EC 91 D1          STA (SCNLIN),Y
3040: B5EE AD 86 02       LDA CCOLOR
3050: B5F1 91 F3          STA (PCCRAM),Y
3060: B5F3 60             INSDON RTS

;
; ROUTINES TO CLEAR SCREEN AND
; REDRAW TOP AND BOTTOM
;
3110: B5F4 20 3B B6 SCRCLR JSR ARACLR ; CLEAR CENTER
3120: B5F7 20 0B B6 CLERTB JSR CLEARB

;
3140: B5FA A2 4F          CLEAR1 LDX #79
3150: B5FC A0 A0          LDY #160
3160: B5FE A9 0E          CLEAR1 LDA #14
3170: B600 9D 00 D8      STA COLORR,X
3180: B603 98             TYA
3190: B604 9D 00 C8      STA SCREEN,X
3200: B607 CA             DEX
3210: B608 10 F4          BPL CLEAR1
3220: B60A 60             RTS

;
3240: B60B A2 4F          CLEARB LDX #79
3250: B60D A0 A0          LDY #160
3260: B60F A9 0E          CLEAR2 LDA #14
3270: B611 9D 9B DB      STA COLORR+920,X
3280: B614 98             TYA
3290: B615 9D 9B CB      STA SCREEN+920,X
3300: B618 CA             DEX
3310: B619 10 F4          BPL CLEAR2
3320: B61B 60             RTS

;
; ROUTINE TO CLEAR ALL FIELDS
;
3360: B61C A9 00          CLRFLD LDA #<SCREEN
3370: B61E A0 C8          LDY #>SCREEN
3380: B620 85 22          CLRFD0 STA POINTA
3390: B622 84 23          STY POINTA+1
3400: B624 A0 50          LDY #80 ; 2 LINES
3410: B626 A2 A0          LDX #160 ; REV SPACE
3420: B628 B1 22          CLRFD1 LDA (POINTA),Y
3430: B62A 10 03          BPL CLRFD2
3440: B62C 8A             TXA
3450: B62D 91 22          STA (POINTA),Y
3460: B62F C8             CLRFD2 INY
3470: B630 D0 F6          BNE CLRFD1
3480: B632 E6 23          INC POINTA+1
3490: B634 A5 23          LDA POINTA+1
3500: B636 C9 CC          CMP #$CC
3510: B638 90 EE          BCC CLRFD1
3520: B63A 60             RTS

;
; ROUTINE TO CLEAR MAIN AREA ONLY
; AND SET COLOR TO WHITE FOR BUG
; IN REVS 2 AND 3 OF ROMS
;
3580: B63B A0 00          ARACLR LDY #0
3590: B63D A2 01          LDX #1

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3600: B63F A9 20 ARALF LDA #" "
3610: B641 99 50 C8 STA SCREEN+80,Y
3620: B644 99 22 C9 STA SCREEN+80+210,Y
3630: B647 99 F4 C9 STA SCREEN+80+420,Y
3640: B64A 99 C6 CA STA SCREEN+80+630,Y
3650: B64D 8A TXA
3660: B64E 99 50 D8 STA COLORR+80,Y
3670: B651 99 22 D9 STA COLORR+80+210,Y
3680: B654 99 F4 D9 STA COLORR+80+420,Y
3690: B657 99 C6 DA STA COLORR+80+630,Y
3700: B65A C8 INY
3710: B65B C0 D2 CPY #210
3720: B65D D0 E0 BNE ARALF
3730: B65F 60 RTS

;
; ROUTINE TO ZERO FIRST BYTE OF
; ALL RECORDS
;
3780: B660 A5 31 RESFLG LDA PBGREC
3790: B662 A4 32 LDY PBGREC+1
3800: B664 85 33 RESFG0 STA PCRREC ;DESTROY ENTRY
3810: B666 84 34 STY PCRREC+1
3820: B668 A0 00 RESFG1 LDY #0 ;CLEAR BOTH 'Y & 'A
3830: B66A 98 TYA
3840: B66B 91 33 STA (PCRREC),Y
3850: B66D 20 F0 B8 JSR ADDLEN
3860: B670 90 F6 BCC RESFG1
3870: B672 60 RTS

;
; ROUTINE TO ANALYZE SCREEN
; AND SET UP BUFFER
;
3920: B673 20 7C B5 ANALYZE JSR BLKOFF
3930: B676 A9 92 LDA #146 ;REV OFF
3940: B678 20 76 B5 JSR EDOUT
3950: B67B A9 50 LDA #80 ;<SCREEN+80
3960: B67D A0 C8 LDY #>SCREEN
3970: B67F 85 24 STA POINTB
3980: B681 84 25 STY POINTB+1
3990: B683 A0 D8 LDY #>COLORR
4000: B685 85 22 STA POINTA
4010: B687 84 23 STY POINTA+1
4020: B689 A5 2B LDA PBGSDT
4030: B68B A4 2C LDY PBGSDT+1
4040: B68D 85 20 STA BUFPTR
4050: B68F 84 21 STY BUFPTR+1
4060: B691 A9 FF LDA #$FF
4070: B693 85 77 STA TEMP3 ;CLEAR COLOR
4080: B695 A0 00 LDY #0
4090: B697 84 FB STY TEMPFL ;ZERO FIELDS
4100: B699 8C 01 CF STY RECLEN ;ZERO FIELD LENGTH
4110: B69C 8C 02 CF STY RECLEN+1
4120: B69F A9 14 LDA #20 ;NUM ROWS
4130: B6A1 85 80 STA ROWCNT
4140: B6A3 A9 28 LDA #40
4150: B6A5 85 81 STA COLCNT ;SET COLUMN
4160: B6A7 B1 22 ANALOP LDA (POINTA),Y ;GET COLOR
4170: B6A9 C5 77 CMP TEMP3
4180: B6AB F0 08 BEQ ANAL1
4190: B6AD 85 77 STA TEMP3
4200: B6AF 20 9A B8 JSR CLRCOV ;CONVER COLOR TO ASCII
4210: B6B2 20 C5 B8 JSR BUFIT ;INCREMENT BUFFER
4220: B6B5 B1 24 ANAL1 LDA (POINTB),Y ;GET CHAR
4230: B6B7 C9 20 CMP #" "
4240: B6B9 D0 0E BNE ANAL3
4250: B6BB AA TAX ;SAVE CHAR

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4260: B6BC C6 81 ANAL2 DEC COLCNT ; LOOP TILL NOT
4270: B6BE 30 05 BMI ANAL21
4280: B6C0 C8 INY ; SPACE OR END OF ROW
4290: B6C1 D1 24 CMP (POINTB),Y
4300: B6C3 F0 F7 BEQ ANAL2
4310: B6C5 98 ANAL21 TYA
4320: B6C6 48 PHA
4330: B6C7 D0 29 BNE ANAL4 ; ALWAYS
4340: B6C9 C9 80 ANAL3 CMP #128 ; CHECK REV CHAR
4350: B6CB 90 3D BCC ANAL6
4360: B6CD C9 A0 CMP #160 ; CHECK REV SPACE
4370: B6CF F0 0E BEQ ANAL31
4380: B6D1 C9 83 CMP #131 ; REV 'C
4390: B6D3 F0 08 BEQ ANAL30
4400: B6D5 C9 8E CMP #142 ; REV 'N
4410: B6D7 F0 04 BEQ ANAL30
4420: B6D9 A9 A0 LDA #160
4430: B6DB D0 02 BNE ANAL31 ; ALWAYS
4440: B6DD 09 60 ANAL30 ORA #$60
4450: B6DF AA ANAL31 TAX ; SAVE CHAR
4460: B6E0 C6 81 ANAL33 DEC COLCNT ; LOOP TILL NOT
4470: B6E2 30 05 BMI ANAL32 ; REV SPACE OR END
4480: B6E4 C8 INY ; OF ROW
4490: B6E5 B1 24 LDA (POINTB),Y
4500: B6E7 30 F7 BMI ANAL33
4510: B6E9 98 ANAL32 TYA
4520: B6EA 48 PHA ; SAVE COUNT
4530: B6EB 20 E3 B8 JSR ADRECL ; ADD TO FILE LENGTH
4540: B6EE E6 FB INC TEMPFL ; INCREM FIELD COUNT
4550: B6F0 F0 49 BEQ TOMNY ; TO MANY FIELDS
4560: B6F2 A0 00 ANAL4 LDY #0 ; RESET 'Y
4570: B6F4 98 TYA ; SET BUF 0 FLAG
4580: B6F5 20 C5 B8 JSR BUFIT
4590: B6F8 8A TXA ; GET CHAR
4600: B6F9 20 C5 B8 JSR BUFIT
4610: B6FC 68 PLA ; GET COUNT
4620: B6FD 20 C5 B8 JSR BUFIT
4630: B700 48 PHA
4640: B701 20 BB B8 JSR ADDFTA
4650: B704 68 PLA
4660: B705 20 B1 B8 JSR ADDFTB ; ADD TO POINTB
4670: B708 D0 0E BNE ANAL62 ; ALWAYS
;
4690: B70A 20 20 B8 ANAL6 JSR CONASC ; CONVER TO ASCI
4700: B70D 20 C5 B8 JSR BUFIT
4710: B710 20 DC B8 JSR INCFTA ; ADD TO POINTA
4720: B713 20 D5 B8 JSR INCFTB ; ADD TO POINTB
4730: B716 C6 81 DEC COLCNT
4740: B718 A5 81 ANAL62 LDA COLCNT
4750: B71A 30 02 BMI ANAL63
4760: B71C D0 08 BNE ANALDN
4770: B71E C6 80 ANAL63 DEC ROWCNT
4780: B720 30 07 BMI SETFLD
4790: B722 A9 28 LDA #40
4800: B724 85 81 STA COLCNT
4810: B726 4C A7 B6 ANALDN JMP ANALOP ; DONE YET
;
; ROUTINE TO TEST FIELDS
;
4850: B729 A9 00 SETFLD LDA #0
4860: B72B 20 C5 B8 JSR BUFIT ; TWO ZEROS AT END SCRIN
4870: B72E 20 C5 B8 JSR BUFIT
;
4890: B731 A2 19 LDX #25 ; NO FIELDS
4900: B733 A5 FB LDA TEMPFL ; GET FIELD COUNT
4910: B735 F0 06 BEQ ANAERR

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4920:  B737 C9 3D      CMP      #61      ;MAX FIELDS
4930:  B739 90 07      BCC      ANAOK
4940:  B73B A2 1A      TOMNY  LDX      #26      ;TO MANY FIELDS
4950:  B73D 20 BC B9  ANAERR JSR      MESSAG
4960:  B740 38          SEC          ;GO DESIGN
4970:  B741 60          RTS

;

4990:  B742 20 C5 B8  ANAOK  JSR      BUFIT      ;SAVE #FLDS
5000:  B745 A9 01      LDA      #1      ;ADD 1 FOR EXTRA BYTE
5010:  B747 20 E3 B8      JSR      ADRECL
5020:  B74A AD 01 CF      LDA      RECLEN
5030:  B74D 20 C5 B8      JSR      BUFIT
5040:  B750 AD 02 CF      LDA      RECLEN+1
5050:  B753 20 C5 B8      JSR      BUFIT

;

5070:  B756 A2 00      LDX      #0      ;ZERO FIELD NUMBER
5080:  B758 B6 08      STX      NAMLEN    ;ZERO PREV FILE NAME
5090:  B75A E8          ANAOK1 INX          ;GET FIELD NUM
5100:  B75B 8A          TXA
5110:  B75C 20 C5 B8      JSR      BUFIT
5120:  B75F A9 B1      LDA      #$B1    ;REV '1 - 1 SPACE
5130:  B761 20 C5 B8      JSR      BUFIT
5140:  B764 E4 FB      CPX      TEMPFL  ;TO FIELD NUMBER YET
5150:  B766 D0 F2      BNE      ANAOK1

;

5170:  B768 A9 00      LDA      #0
5180:  B76A 20 C5 B8      JSR      BUFIT    ;LEFT MARGIN-'0
5190:  B76D A9 01      LDA      #1
5200:  B76F 20 C5 B8      JSR      BUFIT    ;LINES BETWEEN REC-'1
5210:  B772 A9 00      LDA      #0
5220:  B774 91 20      STA      (BUFFPTR),Y ;'0 IS STRT OF RECD

;

5240:  B776 A5 20      LDA      BUFFPTR  ;GET END OF SCREEN
5250:  B778 A4 21      LDY      BUFFPTR+1
5260:  B77A 85 31      STA      PBGREC    ;SET BEG RECORD
5270:  B77C 84 32      STY      PBGREC+1
5280:  B77E 85 2D      STA      PLSREC    ;SET LAST RECORD
5290:  B780 84 2E      STY      PLSREC+1
5300:  B782 85 33      STA      PCRREC    ;SET CURRENT RECORD
5310:  B784 84 34      STY      PCRREC+1
5320:  B786 E6 07      INC      WARM      ;SCREEN DONE
5330:  B788 18          CLC
5340:  B789 60          RTS

;

5360:  B78A A2 13      MEMORY LDX      #19    ;'MEMORY AVAI...
5370:  B78C 20 BC B9  JSR      MESSAG
5380:  B78F A2 18      LDX      #24
5390:  B791 A0 14      LDY      #20
5400:  B793 18          CLC
5410:  B794 20 F0 FF  JSR      PLOT
5420:  B797 38          SEC          ;FIND # OF BYTES LEFT
5430:  B798 A5 37      LDA      TOPRAM
5440:  B79A E5 2D      SBC      PLSREC
5450:  B79C 85 22      STA      POINTA    ;PUT NUMBER OF BYTES
5460:  B79E A5 38      LDA      TOPRAM+1 ;INTO POINTA
5470:  B7A0 E5 2E      SBC      PLSREC+1
5480:  B7A2 85 23      STA      POINTA+1
5490:  B7A4 AD 01 CF  LDA      RECLEN    ;DIVIDE BY RECORD LEN
5500:  B7A7 AC 02 CF  LDY      RECLEN+1    ;IN POINTB
5510:  B7AA 85 24      STA      POINTB
5520:  B7AC 84 25      STY      POINTB+1
5530:  B7AE 20 F8 B7  JSR      SUBRAT    ;RESULT IN POINTA
5540:  B7B1 A9 00      LDA      #0
5550:  B7B3 85 75      STA      TEMP
5560:  B7B5 A2 07      LDX      #7      ;DIVIDE BY 10000, ETC.
5570:  B7B7 BD F0 B7  MEMRY1 LDA      SUBTBL,X

```

```

5580: B7BA 85 24 STA POINTB
5590: B7BC CA DEX
5600: B7BD BD F0 B7 LDA SUBTBL,X
5610: B7C0 85 25 STA POINTB+1
5620: B7C2 86 76 STX TEMP2 ;SAVE 'X
5630: B7C4 20 F8 B7 JSR SUBRAT
5640: B7C7 A6 76 LDX TEMP2 ;RESTORE 'X
5650: B7C9 A5 22 LDA POINTA
5660: B7CB 09 30 ORA ##30
5670: B7CD C9 30 CMP ##30
5680: B7CF D0 08 BNE MEMRY2
5690: B7D1 A4 75 LDY TEMP
5700: B7D3 D0 06 BNE MEMRY3
5710: B7D5 A9 20 LDA #" "
5720: B7D7 D0 02 BNE MEMRY3 ;ALWAYS
5730: B7D9 E6 75 MEMRY2 INC TEMP
5740: B7DB 20 16 E7 MEMRY3 JSR SCRUT
5750: B7DE A5 14 LDA INTGER ;GET REMAINDER AND
5760: B7E0 A4 15 LDY INTGER+1
5770: B7E2 85 22 STA POINTA ;PUT INTO POINT A
5780: B7E4 84 23 STY POINTA+1
5790: B7E6 CA DEX
5800: B7E7 10 CE BPL MEMRY1
5810: B7E9 A5 22 LDA POINTA ;PRINT REMAINDER
5820: B7EB 09 30 ORA ##30
5830: B7ED 4C 16 E7 JMP SCRUT ;PRINT IT AND RETURN

```

```

5850: B7F0 00 0A SUBTBL .BYT $00,$0A ;10
5860: B7F2 00 64 .BYT $00,$64 ;100
5870: B7F4 03 E8 .BYT $03,$E8 ;1000
5880: B7F6 27 10 .BYT $27,$10 ;10000

```

```

;
; ROUTINE TO 16 BIT DIVISION
; POINTA = DIVIDEND
; POINTB = DIVISOR
;
; POINTA = RESULT
; INTGER = REMAINDER
;

```

```

5970: B7F8 A9 00 SUBRAT LDA #0
5980: B7FA 85 14 STA INTGER ;ZERO TEMP DIVEDEND
5990: B7FC 85 15 STA INTGER+1
6000: B7FE A2 10 LDX #16 ;16 BITS TO DIVIDE
6010: B800 26 22 SUBLOP ROL POINTA ;ROLE ONE BIT
6020: B802 26 23 ROL POINTA+1 ;INTO TEMP DIVIDEND
6030: B804 26 14 ROL INTGER
6040: B806 26 15 ROL INTGER+1
6050: B808 38 SEC ;DO TRIAL SUBTRACT
6060: B809 A5 14 LDA INTGER
6070: B80B E5 24 SBC POINTB
6080: B80D A8 TAY ;SAVE LOW ORDER
6090: B80E A5 15 LDA INTGER+1
6100: B810 E5 25 SBC POINTB+1
6110: B812 90 04 BCC SUBDON ;NO GO-NOT BIG ENUF
6120: B814 84 14 STY INTGER ;OK-SAVE RESULT
6130: B816 85 15 STA INTGER+1
6140: B818 CA SUBDON DEX ;16 BITS YET
6150: B819 D0 E5 BNE SUBLOP ;NO-GO AGAIN
6160: B81B 26 22 ROL POINTA ;ROLE LAST CARRY IN
6170: B81D 26 23 ROL POINTA+1 ;FOR QUOTIENT
6180: B81F 60 RTS

```

```

6200: B820 .FILE8,"FILER.PAL END"
; LAST PART OF MICROFILER
;
; ROUTINE TO CONVERT SCREEN CODES

```

; TO ASCII

```

150:  B820 C9 20      CONASC  CMP  #" "
160:  B822 B0 04              BCS  ASCII1
170:  B824 09 40              ORA  #$40
180:  B826 D0 14              BNE  CONDON
190:  B828 C9 40      ASCII1  CMP  #"@"
200:  B82A 90 10              BCC  CONDON
210:  B82C C9 60              CMP  #$60
220:  B82E B0 04              BCS  ASCII2
230:  B830 09 80              ORA  #$80
240:  B832 D0 08              BNE  CONDON
250:  B834 C9 80      ASCII2  CMP  #$80
260:  B836 B0 04              BCS  CONDON
270:  B838 29 3F              AND  #$3F
280:  B83A 09 80              ORA  #$80
290:  B83C 60      CONDON  RTS

```

;
; ROUTINE TO CLEAR SOUND CHIP

```

330:  B83D A2 18      CLRSND  LDX  #24
340:  B83F A9 00              LDA  #0
350:  B841 9D 00 D4  CLRSN1  STA  SOUND,X
360:  B844 CA              DEX
370:  B845 10 FA              BPL  CLRSN1
380:  B847 60              RTS

```

; BIP SOUND - BETWEEN FIELDS

```

420:  B848 20 3D B8 BIP      JSR  CLRSND
430:  B84B A9 02              LDA  #2
440:  B84D 8D 05 D4              STA  SOUND+5
450:  B850 A9 08              LDA  #8
460:  B852 8D 18 D4              STA  SOUND+24
470:  B855 A9 23              LDA  #35
480:  B857 8D 01 D4              STA  SOUND+1
490:  B85A A9 21              LDA  #33
500:  B85C 8D 04 D4              STA  SOUND+4
510:  B85F A2 32              LDX  #50
520:  B861 20 B3 EE BIFLP     JSR  DEL1MS
530:  B864 CA              DEX
540:  B865 D0 FA              BNE  BIFLP
550:  B867 A9 20              LDA  #32
560:  B869 8D 04 D4              STA  SOUND+4
570:  B86C 60              RTS

```

; BEEP SOUND - ERROR

```

610:  B86D 20 3D B8 BEEP      JSR  CLRSND
620:  B870 A9 09              LDA  #9
630:  B872 8D 05 D4              STA  SOUND+5
640:  B875 8D 06 D4              STA  SOUND+6
650:  B878 A9 0F              LDA  #15
660:  B87A 8D 18 D4              STA  SOUND+24
670:  B87D A9 96              LDA  #150
680:  B87F 8D 00 D4              STA  SOUND
690:  B882 A9 06              LDA  #6
700:  B884 8D 01 D4              STA  SOUND+1
710:  B887 A9 21              LDA  #33
720:  B889 8D 04 D4              STA  SOUND+4
730:  B88C A2 FF              LDX  #255
740:  B88E 20 B3 EE BEEPLF     JSR  DEL1MS
750:  B891 CA              DEX
760:  B892 D0 FA              BNE  BEEPLF
770:  B894 A9 20              LDA  #32
780:  B896 8D 04 D4              STA  SOUND+4

```

```

790:      B899 60      RTS
;
; ROUTINE TO CONVERT COLOR CODES
; TO ASCII
;
840:      B89A 29 0F    CLRCOV    AND    ##0F      ; CONVERT COLOR
850:      B89C AA      TAX
860:      B89D BD A1 B8    LDA    CLRTBL,X      ; TO ASCII
870:      B8A0 60      RTS
;
890:      B8A1 90 05 1C    CLRTBL    .BYT 144,5,28,159,156,30
900:      B8A7 1F 9E 81    .BYT 31,158,129,149,150,151,152
910:      B8AE 99 9A 9B    .BYT 153,154,155
;
930:      B8B1 18      ADDPTB    CLC      ; ADD TO POINTB
940:      B8B2 65 24      ADC    POINTB
950:      B8B4 85 24      STA    POINTB
960:      B8B6 90 02      BCC    APTBDN
970:      B8B8 E6 25      INC    POINTB+1
980:      B8BA 60      APTBDN    RTS
;
1000:     B8BB 18      ADDPTA    CLC      ; ADD TO POINTA
1010:     B8BC 65 22      ADC    POINTA
1020:     B8BE 85 22      STA    POINTA
1030:     B8C0 90 02      BCC    APTADN
1040:     B8C2 E6 23      INC    POINTA+1
1050:     B8C4 60      APTADN    RTS
;
1070:     B8C5 91 20      BUFIT    STA    (BUFPTR),Y  ; STORE AND
1080:     B8C7 E6 20      INCBUF    INC    BUFPTR      ; INC BUFPTR
1090:     B8C9 D0 02      BNE    INCDON
1100:     B8CB E6 21      INC    BUFPTR+1
1110:     B8CD 60      INCDON    RTS
;
1130:     B8CE E6 33      INCPCR    INC    PCRREC
1140:     B8D0 D0 02      BNE    INCCRD
1150:     B8D2 E6 34      INC    PCRREC+1
1160:     B8D4 60      INCCRD    RTS
;
1180:     B8D5 E6 24      INCPTB    INC    POINTB
1190:     B8D7 D0 02      BNE    INCBDN
1200:     B8D9 E6 25      INC    POINTB+1
1210:     B8DB 60      INCBDN    RTS
;
1230:     B8DC E6 22      INCPTA    INC    POINTA
1240:     B8DE D0 02      BNE    INCADN
1250:     B8E0 E6 23      INC    POINTA+1
1260:     B8E2 60      INCADN    RTS
;
1280:     B8E3 18      ADRECL    CLC      ; ADD TO FIELD LENGTH
1290:     B8E4 6D 01 CF    ADC    RECLEN
1300:     B8E7 8D 01 CF    STA    RECLEN
1310:     B8EA 90 03      BCC    ADRECD
1320:     B8EC EE 02 CF    INC    RECLEN+1
1330:     B8EF 60      ADRECD    RTS
;
; ADD RECORD LENGTH TO -PCRREC-
; AND TEST FOR END OF RECORDS
;
1380:     B8F0 18      ADDLEN    CLC
1390:     B8F1 AD 01 CF    LDA    RECLEN
1400:     B8F4 65 33      ADC    PCRREC
1410:     B8F6 A8      TAY      ; SAVE LOW ORDER
1420:     B8F7 AD 02 CF    LDA    RECLEN+1
1430:     B8FA 65 34      ADC    PCRREC+1
1440:     B8FC C5 2E      CMP    PLSREC+1

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1450: B8FE 90 06      BCC ADDLOK      ; LESS THAN
1460: B900 D0 08      BNE ADDLDN      ; GREATER THAN-END
1470: B902 C4 2D      CPY PLSREC      ; LAST RECORD
1480: B904 B0 04      BCS ADDLDN      ; AT END
1490: B906 B4 33      ADDLOK STY PCORREC
1500: B908 B5 34      STA PCORREC+1
1510: B90A 60          ADDLDN RTS      ; 'C IS END FLAG

;
; SET UP VIDEO CHIP & POINTERS
;
1550: B90B A9 1B      SETVID LDA ##1B
1560: B90D 8D 11 D0    STA VICMOD
1570: B910 A9 C8      LDA ##C8
1580: B912 8D 16 D0    STA VICMCM
1590: B915 A9 20      LDA ##20      ; SCN $0800 - CHR $0000
1600: B917 8D 18 D0    STA VICSCN
1610: B91A A9 00      LDA #0
1620: B91C 8D 15 D0    STA SPRITE
1630: B91F 8D 1A D0    STA VICMSK      ; NO VIDEO IRQ

;
1650: B922            .IF CART-1
;
1670: B922 A9 50      LDA #<LOOP
1680: B924 A0 A0      LDY #>LOOP
1690: B926 B5 22      STA POINTA
1700: B928 B4 23      STY POINTA+1
1710: B92A A9 D2      LDA #<SCDATA
1720: B92C A0 BD      LDY #>SCDATA
1730: B92E 20 8E B9    JSR SWPDES      ; TRY TO SWAP ROM

;
1750: B931 A9 00      LDA #0          ; BLACK
1760: B933 8D 21 D0    STA BKGCLR
1770: B936 A9 0E      LDA #14        ; LIGHT BLUE
1780: B938 8D 20 D0    STA BDRCLR
1790: B93B A9 C4      LDA ##C4
1800: B93D 8D 00 DD    STA VICSEL      ; SET VIC TO C BLOCK
1810: B940 A9 C8      LDA #>SCREEN    ; SCREEN BASE
1820: B942 8D 88 02    STA HIBASE

;
1840: B945            .IF CART
1840: B945            .GOTO1910
1910: B945 A9 08      LDA #8          ; LOCK KEYBOARD
1920: B947 4C 16 E7    JMP SCROUT      ; PRINT & RETURN

;
1940: B94A A9 00      NEWCHR LDA #<CHRSET
1950: B94C A0 D0      LDY #>CHRSET
1960: B94E B5 22      STA POINTA
1970: B950 B4 23      STY POINTA+1
1980: B952 A9 00      LDA #<NCHRST
1990: B954 A0 C0      LDY #>NCHRST
2000: B956 B5 24      STA POINTB
2010: B958 B4 25      STY POINTB+1
2020: B95A 78          SEI
2030: B95B A9 2F      LDA ##2F        ; SET DDR
2040: B95D B5 00      STA D6510
2050: B95F A9 32      LDA ##32        ; TURN ON CHRSET
2060: B961 B5 01      STA R6510
2070: B963 A2 08      LDX #8          ; COUNTER - 8 BLOCKS
2080: B965 20 AB B9    JSR COPYBK
2090: B968 A9 36      LDA ##36
2100: B96A B5 01      STA R6510
2110: B96C 58          CLI
2120: B96D A9 EE      LDA #<NEWSET
2130: B96F A0 BE      LDY #>NEWSET
2140: B971 B5 22      STA POINTA
2150: B973 B4 23      STY POINTA+1

```

```

2160: B975 A9 00 LDA #<SWPARA
2170: B977 A0 CC LDY #>SWPARA
2180: B979 85 24 STA POINTB
2190: B97B 84 25 STY POINTB+1
2200: B97D A2 02 LDX #2 ; COUNTER - 2 BLOCK
2210: B97F 20 AB B9 JSR COPYBK

```

```

;
; ROUTINE TO SWAP TWO CHAR SETS
;

```

```

2250: B982 A9 00 SWAP LDA #<NCHRST
2260: B984 A0 C6 LDY #>NCHRST+$600
2270: B986 85 22 STA POINTA
2280: B988 84 23 STY POINTA+1
2290: B98A A9 00 LDA #<SWPARA
2300: B98C A0 CC LDY #>SWPARA
2310: B98E 85 24 SWPDES STA POINTB ; DESTROY ENTRY
2320: B990 84 25 STY POINTB+1
2330: B992 A0 00 LDY #0
2340: B994 A2 02 LDX #2 ; SWAP 2 BLOCKS
2350: B996 B1 22 SWPLOP LDA (POINTA),Y
2360: B998 48 PHA
2370: B999 B1 24 LDA (POINTB),Y
2380: B99B 91 22 STA (POINTA),Y
2390: B99D 68 PLA
2400: B99E 91 24 STA (POINTB),Y
2410: B9A0 C8 INY
2420: B9A1 D0 F3 BNE SWPLOP
2430: B9A3 E6 23 INC POINTA+1
2440: B9A5 E6 25 INC POINTB+1
2450: B9A7 CA DEX
2460: B9A8 D0 EC BNE SWPLOP
2470: B9AA 60 RTS

```

```

;
; .IF CART
; .GOTO2610

```

```

2490: B9AB COPYBK LDY #0 ; COPY 'X' BLOCKS
2490: B9AB SETLOP LDA (POINTA),Y
2610: B9AB A0 00 STA (POINTB),Y
2620: B9AD B1 22 INY
2630: B9AF 91 24 BNE SETLOP
2640: B9B1 C8 INC POINTA+1
2650: B9B2 D0 F9 INC POINTB+1
2660: B9B4 E6 23 DEX
2670: B9B6 E6 25 BNE SETLOP
2680: B9B8 CA RTS
2690: B9B9 D0 F2
2700: B9BB 60

```

```

;
; ROUTINE TO DISPLAY MESSAGES
;

```

```

; X REG IS MESSAGE NUMBER
;

```

```

2760: B9BC A9 29 MSGAG LDA #<MSGTBL
2770: B9BE A0 BA LDY #>MSGTBL
2780: B9C0 85 24 STA POINTB
2790: B9C2 84 25 STY POINTB+1
2800: B9C4 20 7C B5 JSR BLKOFF
2810: B9C7 E6 CC INC BLIKSW ; TURN OFF CURSOR
2820: B9C9 A0 00 LDY #0
2830: B9CB 84 C7 STY REVFLG
2840: B9CD CA MSG1 DEX
2850: B9CE F0 0F BEQ MSGPT
2860: B9D0 B1 24 LDA (POINTB),Y
2870: B9D2 29 7F AND #$7F ; MASK BIT '7
2880: B9D4 18 CLC
2890: B9D5 65 24 ADC POINTB
2900: B9D7 85 24 STA POINTB
2910: B9D9 90 F2 BCC MSG1

```

```

2920: B9DB E6 25      INC    POINTB+1
2930: B9DD B0 EE      BCS    MSG1      ; ALWAYS

;
2950: B9DF A2 00      MSGPT   LDX    #0
2960: B9E1 B1 24      LDA    (POINTB),Y
2970: B9E3 10 04      BPL    MSGP1
2980: B9E5 85 FF      STA    MSGGFL
2990: B9E7 A2 18      LDX    #24
3000: B9E9 29 7F      MSGP1   AND    #$7F      ; MASK BIT '7
3010: B9EB 85 81      STA    COLCNT
3020: B9ED C8         INY
3030: B9EE B1 24      LDA    (POINTB),Y
3040: B9F0 48         PHA          ; SAVE START
3050: B9F1 10 04      BPL    MSGP11
3060: B9F3 A9 05      LDA    #5      ; WHITE
3070: B9F5 D0 02      BNE    MSGP2      ; ALWAYS
3080: B9F7 A9 9F      MSGP11  LDA    #159     ; CYAN
3090: B9F9 20 16 E7  MSGP2   JSR    SCROUT
3100: B9FC 68         PLA          ; GET START
3110: B9FD 48         PHA
3120: B9FE 29 7F      AND    #$7F
3130: BA00 84 80      STY    ROWCNT
3140: BA02 A8         TAY
3150: BA03 18         CLC
3160: BA04 20 F0 FF   JSR    PLOT      ; POSITION CURSOR
3170: BA07 A4 80      LDY    ROWCNT
3180: BA09 C8         INY
3190: BA0A B1 24      MSGP3   LDA    (POINTB),Y
3200: BA0C 10 04      BPL    MSGP4
3210: BA0E 29 7F      AND    #$7F
3220: BA10 E6 C7      INC    REVFLG
3230: BA12 20 16 E7  MSGP4   JSR    SCROUT
3240: BA15 A2 00      LDX    #0
3250: BA17 86 C7      STX    REVFLG
3260: BA19 C8         INY
3270: BA1A C4 81      CPY    COLCNT
3280: BA1C 90 EC      BCC    MSGP3
3290: BA1E 68         PLA
3300: BA1F 10 03      BPL    MSGDON
3310: BA21 20 6D B8   JSR    BEEP
3320: BA24 A9 9F      MSGDON  LDA    #159     ; CYAN
3330: BA26 4C 16 E7   JMP    SCROUT      ; PRINT & RETURN

```

```

;
;  MESSAGES
;  FIRST= HIGH BIT - 0 TOP
;                - 1 BOTTOM
;                REST - LENGTH OF STRING
;
;  SECOND= HIGH BIT - 0 ERROR
;                - 1 MESSAGE
;                REST - LEFT MARGIN
;

```

```

3440: BA29      MSGTBL   =      *
3450: BA29 25 02      .BYT  $25,2      ; 1
3460: BA2B C6 57 44  .ASC   " _WD _WD _ST _CH _NG _RT _LT SU\ _V6"
3470: BA4E 93 8B      .BYT  $93,$8B      ; 2
3480: BA50 42 45 47  .ASC   "BEGINNING OF FILE"
3490: BA61 8D 8E      .BYT  $8D,$8E      ; 3
3500: BA63 45 4E 44  .ASC   "END OF FILE"
3510: BA6E 8D 8E      .BYT  $8D,$8E      ; 4
3520: BA70 4D 45 4D  .ASC   "MEMORY FULL"
3530: BA7B 8C 8F      .BYT  $8C,$8F      ; 5
3540: BA7D 45 4D 50  .ASC   "EMPTY FILE"
3550: BA87 9B 87      .BYT  $9B,$87      ; 6
3560: BA89 54 59 50  .ASC   "TYPE 'Y' TO DELETE RECORD"
3570: BAA2 99 88      .BYT  $99,$88      ; 7

```

```

3580: BAA4 4E 4F 20      .ASC "NO SEARCH KEY SPECIFIED"
3590: BABB 1A 08      .BYT $1A,8      ;8
3600: BABD 43 52 45      .ASC "CREATE DATA ENTRY SCREEN"
3610: BAD5 A2 04      .BYT $A2,4      ;9
3620: BAD7 45 4E 54      .ASC "ENTER SEARCH KEY THEN PRESS <F1>"
3630: BAF7 9F 05      .BYT $9F,5      ;10
3640: BAF9 50 52 45      .ASC "PRESS <F1> TO CONTINUE SEARCH"

;

3660: BB16 9C 87      .BYT $9C,$87      ;11
3670: BB18 4D 55 53      .ASC "MUST HAVE RECORD DISPLAYED"
3680: BB32 95 8A      .BYT $95,$8A      ;12
3690: BB34 45 4E 54      .ASC "ENTRY REQUIRED HERE"
3700: BB47 9D 86      .BYT $9D,$86      ;13
3710: BB49 49 4E 56      .ASC "INVALID CHARACTER IN NUMBER"
3720: BB64 9B 07      .BYT $9B,7      ;14
3730: BB66 45 4E 54      .ASC "ENTER PRINT CONTROL CODES"
3740: BB7F A4 00      .BYT $A4,0      ;15
3750: BB81 48 4F 57      .ASC "HOW MANY LINES BETWEEN RECORDS?  "
3760: BBA3 91 00      .BYT $91,0      ;16
3770: BBA5 4C 45 46      .ASC "LEFT MARGIN?  "
3780: BBB4 1D 06      .BYT $1D,6      ;17
3790: BBB6 3C 46 31      .ASC "<F1> TO STORE <F7> TO EXIT"
3800: BBD1 26 02      .BYT $26,2      ;18
3810: BBD3 C5 4E 54      .ASC "ENTER LTRV HAVE LRM PRNT MEMORY"
3820: BBF7 A6 02      .BYT $A6,2      ;19
3830: BBF9 4D 45 4D      .ASC "MEMORY AVAILABLE:      MORE RECORDS"
3840: BC1D 93 8B      .BYT $93,$8B      ;20
3850: BC1F 2A 20 43      .ASC "* CHECK PRINTER *"

;

3870: BC30 1D 00      .BYT $1D,0      ;21
3880: BC32 46 49 4C      .ASC "FILE NAME :      "
3890: BC4D 1F 05      .BYT $1F,5      ;22
3900: BC4F C3 48 41      .ASC "CHANGE FORMAT (PRINT OF FILE"
3910: BC6C 0B 00      .BYT $0B,0      ;23 (REPLACE)
3920: BC6E D2 C5 D0      .ASC "IL"
3930: BC77 94 8B      .BYT $94,$8B      ;24
3940: BC79 46 4F 52      .ASC "FORMAT DISK? (Y/N)"
3950: BC8B 93 8A      .BYT $93,$8A      ;25
3960: BC8D 4E 4F 20      .ASC "NO FIELDS DEFINED"
3970: BC9E 91 8B      .BYT $91,$8B      ;26
3980: BCA0 54 4F 4F      .ASC "TOO MANY FIELDS"
3990: BCAF 95 8A      .BYT $95,$8A      ;27
4000: BCB1 43 41 53      .ASC "CASSETTE LOAD ERROR"
4010: BCC4 9D 86      .BYT $9D,$86      ;28
4020: BCC6 2A 20 44      .ASC "* DISK DRIVE NOT ATTACHED *"
4030: BCE1 91 80      .BYT $91,$80      ;29
4040: BCE3 2A 20 44      .ASC "* DISK ERROR * "
4050: BCF2 89 10      .BYT $89,$10      ;30
4060: BCF4 53 4F 52      .ASC "SORTING"

;

4080: BCFB 98 89      .BYT $98,$89      ;31
4090: BCFD 4E 55 4D      .ASC "NUMERIC OVERFLOW ERROR"
4100: BD13 1D 00      .BYT $1D,0      ;32
4110: BD15 44 49 53      .ASC "DISK NAME :      "
4120: BD30 0C 00      .BYT $0C,0      ;33
4130: BD32 20 20 4C      .ASC "LOADING "
4140: BD3C 0C 00      .BYT $0C,0      ;34
4150: BD3E 20 20 53      .ASC "SAVING "
4160: BD48 99 88      .BYT $99,$88      ;35
4170: BD4A 4E 4F 20      .ASC "NO PRINT FORMAT DEFINED"
4180: BD61 9D 86      .BYT $9D,$86      ;36
4190: BD63 49 4E 56      .ASC "INVALID CHARACTER IN FORMAT"
4200: BD7E A8 01      .BYT $A8,1      ;37
4210: BD80 4C 45 46      .ASC "LEFT MARGIN:      LINES AFTER RECORDS:  "
4220: BDA6 8F 0D      .BYT $8F,$0D      ;38
4230: BDAB 52 45 43      .ASC "RECORD STORED"

```



```

4240: BDB5 1D 00 00 .BYT $1D,0 ;39
4250: BDB7 20 20 57 .ASC " WP FILE : "

;
4270: BDD2 SCDATA = *
4280: BDD2 93 92 00 .BYT 147,146,0,32,50,18,158
4290: BDD9 D3 D4 D5 .BYT 211,212,213,214,215,216 ;MIC
4300: BDDF D9 DA D7 .BYT 217,218,215,219,220,221 ;RDF
4310: BDE5 D5 D6 DE .BYT 213,214,222,223,224,225 ;ILE
4320: BDEB D9 DA 92 .BYT 217,218,146,0,32,68,155 ;R
4330: BDF2 46 52 4F .ASC "FROM"
4340: BDF6 00 20 43 .BYT 0,32,67,18,31
4350: BDFB D0 CF D2 .BYT 208,207,210,209,208,207,206,205,204,146,154
4360: BE06 20 20 4D .ASC " MICROBITS"
4370: BE11 00 20 14 .BYT 0,32,20,18,31
4380: BE16 20 C1 C2 .BYT 32,193,194,32,199,200,201,202,203,146,154
4390: BE21 20 20 50 .ASC " PERIPHERAL"
4400: BE2D 00 20 13 .BYT 0,32,19,18,31
4410: BE32 20 C1 C2 .BYT 32,193,194,32,195,146,183,18,196,197,198,146,
154
4420: BE3F 20 20 50 .ASC " PRODUCTS INC"
4430: BE4D 00 20 65 .BYT 0,32,101,155
4440: BE51 42 59 20 .ASC "BY JIM HARRISON"
4450: BE60 00 20 13 .BYT 0,32,19
4460: BE63 36 34 20 .ASC "64 VERSION BY "
4470: BE71 57 49 4C .ASC "WILLIE BROWN"
4480: BE7D 00 20 10 .BYT 0,32,16
4490: BE80 52 45 56 .ASC "REV 2.0, "
4500: BE89 43 4F 50 .ASC "COPYRIGHT 1984"
4510: BE97 00 20 3B .BYT 0,32,59,159
4520: BE9B A4 A4 A4 .ASC "-----"
4530: BEAB 00 20 18 .BYT 0,32,24,18 ;REVON
4540: BEAF 20 53 45 .ASC " SELECT OPTION: "
4550: BEBF 92 00 20 .BYT 146,0,32,65
4560: BEC3 31 2D 20 .ASC "1- CREATE FILE"
4570: BED1 00 20 1A .BYT 0,32,26
4580: BED4 32 2D 20 .ASC "2- LOAD FILE"
4590: BEE0 00 20 1C .BYT 0,32,28
4600: BEE3 33 2D 20 .ASC "3- RESUME"
4610: BEEC 00 00 .BYT 0,0 ;END

;
4630: BEEE NEWSET = *
4640: BEEE 00 00 00 .BYT 0,0,0,0,0,0,0,0,0
4650: BEF6 0F 0F 0F .BYT $F,$F,$F,$F,$F,$F,$F,$F,$F
4660: BEFE F0 F0 F0 .BYT $F0,$F0,$F0,$F0,$F0,$F0,$F0,$F0,$F0
4670: BF06 FF FF 00 .BYT $FF,$FF,0,$7F,$7F,$7F,$7F,$7F,$7F
4680: BF0E FF FF 00 .BYT $FF,$FF,0,$F,$F,$F,$F,$F,$F
4690: BF16 FF FF 00 .BYT $FF,$FF,0,$E0,$E0,$E0,$E0,$E0,$E0
4700: BF1E C0 00 00 .BYT $C0,0,0,0,0,0,0,0,0
4710: BF26 FF 00 FF .BYT $FF,$0,$FF,$FF,$FF,$FF,$FF,$FF,$FF
4720: BF2E 0F 0F 9F .BYT $F,$F,$9F,$FF,$FF,$FF,$FF,$FF,$FF
4730: BF36 FF F0 FF .BYT $FF,$F0,$FF,$FF,$FF,$FF,$FF,$FF,$FF
4740: BF3E E1 01 F3 .BYT $E1,1,$F3,$FF,$FF,$FF,$FF,$FF,$FF
4750: BF46 FC FC FC .BYT $FC,$FC,$FC,$FC,$F8,$F8,$F0,$E0
4760: BF4E 00 C0 E0 .BYT 0,$C0,$E0,$F0,$F8,$F8,$FC,$FC
4770: BF56 FF FF FF .BYT $FF,$FF,$FF,$FF,$FF,$FF,$FF,$FF,$F3
4780: BF5E 00 03 87 .BYT 0,3,$87,$CF,$EF,$EF,$FF,$FF,$FF
4790: BF66 FC FF FF .BYT $FC,$FF,$FF,$FF,$FF,$FF,$FF,$FF,$9F
4800: BF6E 03 0F 1F .BYT 3,$F,$1F,$3F,$7F,$7F,$FF,$FF,$FF
4810: BF76 C0 F0 F8 .BYT $C0,$F0,$F8,$FC,$FE,$FE,$FE,$FF,$FF
4820: BF7E 3F 7F BF .BYT $3F,$7F,$BF,$DF,$EF,$EF,$EF,$F1,$F1

;
4840: BF86 3C 3F 3F .BYT $3C,$3F,$3F,$3C,$3C,$3C,$3C,0
4850: BF8E 0F 3F FF .BYT $F,$3F,$FF,$CF,$F,$F,$F,0 ;M
4860: BF96 0F 03 03 .BYT $F,3,3,3,3,3,$F,0 ;I
4870: BF9E F0 C0 C0 .BYT $F0,$C0,$C0,$C0,$C0,$C0,$F0,0
4880: BFA6 0F 3C 3C .BYT $F,$3C,$3C,$3C,$3C,$3C,$F,0

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4890:	BFAE	F0	3C	00	.BYT	\$F0,\$3C,0,0,0,\$3C,\$F0,0	;C
4900:	BFB6	3F	3C	3C	.BYT	\$3F,\$3C,\$3C,\$3F,\$3F,\$3C,\$3C,0	
4910:	BFBE	F0	3C	3C	.BYT	\$F0,\$3C,\$3C,\$F0,\$C0,\$F0,\$3C,0	
4920:	BFC6	F0	3C	3C	.BYT	\$F0,\$3C,\$3C,\$3C,\$3C,\$3C,\$F0,0	
4930:	BFCE	3F	3C	3C	.BYT	\$3F,\$3C,\$3C,\$3F,\$3C,\$3C,\$3C,0	
4940:	BFD6	FC	00	00	.BYT	\$FC,0,0,\$C0,0,0,0,0	;F
4950:	BFDE	3C	3C	3C	.BYT	\$3C,\$3C,\$3C,\$3C,\$3C,\$3C,\$3F,0	
4960:	BFE6	00	00	00	.BYT	0,0,0,0,0,0,\$FC,0	;L
4970:	BFEE	3F	3C	3C	.BYT	\$3F,\$3C,\$3C,\$3F,\$3C,\$3C,\$3F,0	
4980:	BFF6	FC	00	00	.BYT	\$FC,0,0,\$C0,0,0,\$FC,0	;E
;							
5000:	BFFE				.SST	8,4,"@:MICROFILER.SYM,S,W"	
;							

MICROFILER.SYMACCUM1	0061	ACCUM2	0069	ACPTR	FFA5	ADDLDN	B90A	AD	
DLEN	B8F0								
ADDLOK	B906	ADDPTA	B8BB	ADDFTB	B8B1	ADRECD	B8EF	ADRECL	B8E3
ANAERR	B73D	ANAL1	B6B5	ANAL2	B6BC	ANAL21	B6C5	ANAL3	B6C9
ANAL30	B6DD	ANAL31	B6DF	ANAL32	B6E9	ANAL33	B6E0	ANAL4	B6F2
ANAL6	B70A	ANAL62	B718	ANAL63	B71E	ANALDN	B726	ANALOP	B6A7
ANALYZE	B673	ANAOK	B742	ANAOK1	B75A	APTADN	B8C4	AFTBDN	B8BA
ARACLR	B63B	ARALP	B63F	ASCI1	B828	ASCI2	B834	AVERAG	ADE1
AVR1	ADE5	AVSBD1	AE3F	AVSUB1	ADF4	AVSUB2	AE0A	AVSUB3	AE1D
AVSUB4	AE32	AVSUBD	AE3C	BAKW1	B0C2	BAKWRD	B0B1	BAMDON	A34B
BAMDTA	A3DF	BDRCLR	D020	BEEP	B86D	BEEPLP	B88E	BGAREA	0400
BIF	B848	BIPLP	B861	BKGCLR	D021	BLIKCH	00CE	BLIKON	00CF
BLIKSW	00CC	BLIPRT	EA13	BLKOFF	B57C	BLKOK	B597	BUFIT	B8C5
BUFFTR	0020	CART	0001	CCOLOR	0286	CFDLEN	0083	CFIELD	0082
CHAC1	B226	CHACTR	B222	CHANEL	A3DE	CHANGC	AA51	CHANGD	AA5A
CHANGE	00FD	CHANGL	AA44	CHANGR	AA3A	CHARTS	B237	CHGO	B18D
CHG1	B191	CHG2	B19A	CHG4	B1A4	CHG41	B1C1	CHG6	B1CF
CHG61	B1D3	CHG7	B1DD	CHG8	B1ED	CHG92	B1F0	CHGDAT	B16B
CHGDON	B1FE	CHGERR	B205	CHK1	B543	CHK11	B548	CHK12	B54C
CHK2	B55C	CHK3	B56C	CHKDON	B575	CHKIN	FFC6	CHKOK	B539
CHKOUT	FFC9	CHKPR1	B530	CHKPRT	B529	CHKTBL	B4F9	CHKTLP	B4FB
CHRBKG	0287	CHRN	FFCF	CHRNXT	B232	CHRSET	D000	CLALL	FFE7
CLEAR1	B5FE	CLEAR2	B60F	CLEARB	B60B	CLEART	B5FA	CLERTB	B5F7
CLOSE	FFC3	CLOSE1	B0A4	CLOSLP	B08F	CLOSP1	B07A	CLOSUP	B076
CLRCHN	FFCC	CLRCOV	B89A	CLRFDO	B620	CLRFD1	B628	CLRFD2	B62F
CLRFLD	B61C	CLRSN1	B841	CLRSND	B83D	CLRTBL	B8A1	COLCNT	0081
COLNUM	00D3	COLORR	D800	COMPA1	AFA7	COMPA2	AFAA	COMPL1	AFC3
COMPLP	AFB7	CONASC	B820	CONDON	B83C	COPYBK	B9AB	CURDEV	00BA
CURSUR	B525	D6510	0000	DEL1MS	EEB3	DELDON	B075	DELETE	B052
DELGET	B057	DESO	B4D7	DES1	B4DC	DES2	B4F3	DES3	B505
DESB1	B4B0	DESBK	B4C8	DESC3	B4CE	DESDON	B4F0	DESIGN	B4AB
DESLOP	B4BD	DIR01	A1F8	DIR1	A218	DIR2	A21E	DIR3	A228
DIR31	A22C	DIR4	A238	DIR41	A244	DIR42	A24A	DIR5	A258
DIR6	A269	DIR7	A270	DIRDN1	A287	DIRDON	A27A	DIRDTA	A3DC
DIRORY	A1DB	DISDN	B13D	DISR1	B11B	DISR2	B12E	DISREC	B106
DIVTDN	A8D4	DIVTEN	A89D	DIVTNO	A8AC	DIVTN1	A8CF	DIVTN2	A8B6
DIVTN3	A8C8	DSKBAM	A31D	DSKED1	A2BF	DSKERO	A291	DSKER2	A2AF
DSKERD	A2BE	DSKERR	A28F	DSKINT	A288	DSKNW1	A3CD	DSKNW2	A3D0
DSKSEQ	A3D3	DSKTST	A307	EDOUT	B576	ENTO	A406	ENT1	A40D
ENT11	A413	ENTA1	B25E	ENTD1	B268	ENTD2	B26E	ENTD3	B279
ENTDAT	B259	ENTG1	B28C	ENTG2	B295	ENTGET	B280	ENTST1	B2D6
ENTST2	B2DE	ENTST3	B2E6	ENTST4	B2EE	ENTST5	B2F6	ENTST6	B2FE
ENTST7	B308	ENTTST	B2B8	ERASDT	A3D7	ERRPT1	A2F2	ERRPT3	A301
FILO	A159	FIL01	A176	FIL02	A185	FIL1	A18D	FIL2	A199
FILDEL	A1B9	FILDN1	A1D6	FILDON	A1D0	FILGET	A143	FILGT0	A13F
FILGT1	A153	FILLDN	A1CD	FILNAM	CFE0	FILPRT	A1A9	FLDAH0	B30B
FLDB0	B381	FLDB01	B39A	FLDB1	B3A9	FLDB2	B3C1	FLDB3	B3CD
FLDBCK	B311	FLDBD1	B3C0	FLDBDN	B3B9	FLDBWD	B37B	FLDC0	B325
FLDFO	B320	FLDFO0	B31C	FLDFO1	B338	FLDF1	B349	FLDF11	B351
FLDF2	B369	FLDF3	B375	FLDFD0	B361	FLDFD1	B368	FLDFDN	B359
FLDFWD	B31A	FLDTBL	CF07	FOMGES	A35A	FOR1	A370	FOR2	A38D
FORDON	A3A6	FORGET	A35F	FORMAT	A352	FORRTS	A3A9	FORW0	B0F1
FORW1	B0F6	FORW2	B0FE	FORWRD	B0D2	FOUND	AC1C	FPRNT	A43F
FPRTER	A636	FRM10	A5A0	FRM14	A5AE	FRM20	A5BD	FRM21	A5BF
FRMP19	A49F	FRMP20	A4A8	FRMP31	A4D3	FRMP40	A505	FRMP41	A4F7
FRMP42	A516	FRMP44	A4DD	FRMP45	A4E4	FRMP46	A4F4	FRMP55	A522
FRMPA1	A45A	FRMPA2	A469	FRMPA3	A46B	FRMPS	A5CB	FRMPS0	A5DA
FRMPT1	A46F	FRMPT3	A4CC	FRMPT4	A4D6	FRMPT5	A547	FRMPT6	A560
FRMTT2	A63B	FRMTTD	A64C	FRMTTE	A649	FRMTTT	A60E	FRMW2	A662
FRMW21	A686	FRMW3	A69A	FRMW4	A69F	FRMW5	A6CD	FRMW6	A6E0
FRMWEO	A6CA	FRMWE1	A712	FRMWER	A6E9	FRMWW1	A658	FRMWWW	A652
GETBY0	A856	GETBY1	A82A	GETBY2	A82E	GETBY3	A860	GETBY5	A86E
GETBY6	A871	GETBYT	A811	GETCHL	B5B9	GETCHR	B5A7	GETDEL	A874
GETDES	B5B4	GETDL1	A888	GETER1	A2CC	GETER2	A2DB	GETER3	A2E5
GETERR	A2C0	GETF	A129	GETFO	A10E	GETFN	A105	GETFNO	A10C

GETFN1	A139	GETIN	F142	GETKEY	F142	GETWPF	A10A	HIBASE	0288
INCADN	B8E2	INCBDN	B8DB	INCBUF	B8C7	INCCRD	B8D4	INCDON	B8CD
INCPCR	B8CE	INCPTA	B8DC	INCPTB	B8D5	INITDT	A3DA	INPBUF	0200
INSDON	B5F3	INSERT	B5C1	INSRT1	B5D0	INSRT2	B5D4	INSRT3	B5D9
INSRT5	00D8	INTGER	0014	IQINIT	FF84	LDDATO	A096	LDDAT1	A09E
LDDAT2	A0A2	LDDATA	A093	LINNUM	00D6	LISTEN	FFB1	LOADRM	FFD5
LODERR	A0DD	LODIT1	A0B6	LODIT2	A0EB	LOOP	A050	MAXFLD	CF00
MEMORY	B78A	MEMRY1	B7B7	MEMRY2	B7D9	MEMRY3	B7DB	MEMSI2	0283
MENU0	A053	MENU01	A05A	MENU1	A06A	MENU2	A07B	MENU3	A085
MESGFL	00FF	MESSAG	B9BC	MSG1	B9CD	MSGDON	BA24	MSGMOD	009D
MSGF1	B9E9	MSGP11	B9F7	MSGP2	B9F9	MSGP3	BA0A	MSGP4	BA12
MSGPT	B9DF	MSGTBL	BA29	NAMLEN	0008	NCHRST	C000	NEWCHR	B94A
NEWSET	BEEE	NMIQLD	FE47	NMITST	A002	NMIVEC	0318	NUMBAD	B257
NUMCHR	00C6	NUMER	B238	NUMDK	B250	NUMRTS	B255	NXTREC	AC14
OKKEYS	B50B	OPEN	FFC0	OPT2	A420	OPT3	A427	OPT4	A42E
OPT5	A435	OPTGET	A3F6	OPTINO	A3EE	OPTIN1	A3F1	OPTION	A3EB
OUTPUT	FFD2	PBGREC	0031	PBGSDT	002B	PCCRAM	00F3	PCRREC	0033
PF1	0085	PF7	0088	FFRMPT	002F	PLOT	FFF0	PLSREC	002D
POINTA	0022	POINTB	0024	POINTC	0035	POWRUP	A000	PRESET	A004
PRNT	AA5B	PRNT0	AA79	PRNT1	AA81	PRNT2	AA8E	PRNT21	AA9B
PRNT3	AAAC	PRNT4	AAB9	PRNTER	AAC1	PRTERR	A2E6	PRTFLG	0018
PRTR11	A74E	PRTR22	A767	PRTR60	A7C6	PRTRB1	A7B8	PRTRB2	A7AC
PRTRB3	A7B5	PRTRC0	A7A1	PRTRC1	A748	PRTRC2	A75B	PRTRC3	A77E
PRTRC4	A791	PRTRC6	A7BA	PRTRC7	A7DC	PRTRC8	A7E1	PRTRC9	A7EB
PRTRCA	A7F0	PRTRDN	A7FC	PRTREC	A741	PRTRTS	AB03	QUOTSW	00D4
R6510	0001	RANGEF	0079	RCSRCL	B3DA	READST	FFB7	RECLEN	CF01
REPEAT	028A	RESFG0	B664	RESFG1	B668	RESFLG	B660	RESFLL	A3C3
RESFLN	A3BE	RESTOR	FF8A	RESVIC	E3A0	RETGET	A98E	RETGT1	A991
RETRES	A980	RETRV	A972	RETV0	A9D9	RETV2	A9AF	RETV3	A9BA
RETV31	A9C6	RETV33	A9CD	RETV4	A9DC	RETV5	A9E9	RETV7	AA01
RETV88	AA09	RETV9	AA11	RETVA	AA21	RETVB	AA2F	RETVER	AA32
REVFLG	00C7	RLARY	AE57	RLSHFT	AE5D	RNDOFF	AE4F	ROWCNT	0080
SAVE	ABD6	SAVE0	ABF4	SAVE1	ABF7	SAVE11	A950	SAVE12	A91B
SAVEA	ABE1	SAVER0	A91E	SAVERM	FFD8	SAVERR	A924	SAVFLL	A3B0
SAVFLN	A3AB	SCDATA	BDD2	SCMODE	00FE	SCNDN1	B499	SCNDON	B46A
SCNLIN	00D1	SCNRT	B4A7	SCR2	B416	SCR20	B441	SCR27	B450
SCR28	B45B	SCR29	B458	SCR3	B45E	SCRCLR	B5F4	SCREEN	C800
SCRLOP	B408	SCRN	B401	SCRNP1	B3E7	SCRNPT	B3EA	SCRNXT	B411
SCROUT	E716	SEARCH	AAC9	SEQERD	A740	SEQERE	A73B	SEQERR	A732
SERC21	AB07	SERCH1	AAFO	SERCH2	AB00	SERCH3	AB15	SERCH4	AB3C
SERCH5	AB3F	SERDNO	AC3F	SERDN1	AC47	SERDN2	ACA9	SERDN3	ACB3
SERDN4	ACB5	SERDN5	ACB8	SERDND	AC6B	SERDON	AC26	SERLOP	AC70
SERN11	ABB0	SERN21	AC86	SERN22	AC9F	SERN33	ABAA	SERNX1	AB54
SERNX2	AB6F	SERNX3	AB84	SERNX4	ABB7	SERNX5	ABC9	SERNX6	ABD9
SERNX7	ABDD	SERNX8	ABF2	SERNX9	ABFA	SERNXA	AC0B	SERNXT	AB48
SETFLD	B729	SETLFS	FFBA	SETLOP	B9AD	SETNAM	FFBD	SETSCN	E56C
SETTAP	A0F3	SETVID	B90B	SNDCHR	AB09	SNDCR	AB07	SNDSPC	AB04
SORT	ACC1	SORT0	ACD0	SORT1	ACE0	SORT2	ADOA	SORT5	AD33
SORT6	AD40	SORT7	AD44	SORTDN	AD27	SORTNX	AD60	SOUND	D400
SPRITE	D015	START	A022	STATUS	0090	STODAT	E13E	STOP	FFE1
STOPKY	0091	STORE1	B15F	SUBDON	B818	SUBLOP	B800	SUBRAT	B7F8
SUBTBL	B7F0	SUMA1	AF58	SUMA2	AF67	SUMADD	AF53	SUMAGN	AFA2
SUMDON	AF7E	SUMLOP	AE8C	SUMMDN	ADE0	SUMMIT	AE75	SUMMRV	AD9E
SUMQVC	AF6E	SUMP30	B009	SUMPDN	B051	SUMPR2	AFF1	SUMPR3	B003
SUMPR4	B017	SUMPR5	B028	SUMPR6	B02C	SUMPR7	B030	SUMPR9	B048
SUMPR7	AFCF	SUMRY1	ADA9	SUMRY2	ADC6	SUMRY3	ADCB	SUMT0	AE83
SUMT1	AE9E	SUMT10	AF04	SUMT11	AF27	SUMT12	AF38	SUMT13	AF50
SUMT2	AEA7	SUMT3	AEB2	SUMT31	AEE5	SUMT4	AEF0	SUMT5	AEF7
SUMT6	AEF9	SUMT9	AF02	SUMTST	AF2D	SWAP	B982	SWAF1	AD87
SWAPDN	AD9D	SWAPRC	AD72	SWPARA	CC00	SWPDES	B98E	SWPFLG	0017
SWPLOP	B996	SYNCOL	EA24	TEMP	0075	TEMP2	0076	TEMP3	0077
TEMP4	0078	TEMPFL	00FB	TIMTEN	A891	TMPARA	CFC0	TMPEND	0073
TOMNY	B73B	TOPRAM	0037	TSTO	A31C	TYPE	000E	UNLISN	FFAE
UNWRAP	B599	VICMCM	D016	VICMOD	D011	VICMSK	D01A	VICSCN	D018
VICSEL	DD00	VIDEO	D000	WARM	0007	WRAP	00D9	WRAP1	B59B